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THE SOCIETY'S CHRISTMAS CARD

An order form for the Society's Christmas Card, bearing an illustration of Miss Anna Zinkeisen's painting, together with full details of prices, is included at the back of this issue of the *Journal*. It is hoped to fulfil orders early in October.

INDUSTRIAL ART BURSARIES EXHIBITION

As announced in the July issue of the *Journal*, the exhibition of designs submitted in the 1959 Industrial Art Bursaries Competition will be on view at the Liverpool College of Art, Hope Street, Liverpool 1, from 3rd to 22nd October.

FACILITIES FOR FELLOWS

Fellows are reminded that the accommodation which is available for their use at the Society's House includes the Library, which has a loan collection as well as a reference section, and the Parlour, which may be used as a reading and writing room, and as a meeting place for themselves and their friends.

Light refreshments, such as morning coffee, sandwiches and afternoon tea, can be ordered between 10 a.m. and 5.30 p.m. on weekdays, and until 12 noon on Saturdays.

THE STRUCTURE AND ORGANIZATION OF THE TRANSPORT SYSTEM

A paper by

GILBERT J. PONSONBY, M.A., M.Inst.T.,

***Reader in Commerce, London School of Economics and Political Science,** read to the Society on Wednesday, 30th March, 1960, with the Rt. Honble. Lord Chesham, Joint Parliamentary Secretary, Ministry of Transport, in the Chair*

THE CHAIRMAN: It is a very great privilege for me to act as your Chairman this afternoon. Before I put on my Chairman's hat and take off my ministerial one, I should like to say that we greatly welcome the initiative of the Royal Society of Arts in arranging, over the next three years, this programme of authoritative lectures dealing with the technical, commercial and social implications of the principal industries in this country. Particularly do I welcome the fact that transport has been selected as the first industry to be covered by four lectures, of which this to-day is the first (as well as being the first of the whole programme). That metaphorical force which has suddenly become so very popular—the wind of change—is undoubtedly blowing very strongly in the whole field of transport, and I should not like to think that the social implications stood out any less than the technical or economic considerations of the industry as we see it to-day.

Now if I may revert to my proper job as Chairman: I feel I should start by apologizing to Mr. Ponsonby, because it seems to me that whatever his admirable qualities are, accurate self-appraisal is not one of them! His own introduction of himself to me was so much of an under-estimate that I have had to check up from elsewhere. Mr. Ponsonby is the Sir Ernest Cassel reader in Commerce (with special reference to transport) at the London School of Economics, and he is a member of the Institute of Transport. Originally he took an Honours Degree in Economics at Trinity College, Cambridge (which shows, of course, his excellent taste), and thereafter spent some time with the four amalgamated railway companies, where he was engaged in research. Then he joined the staff of the London School of Economics, where he has been ever since, except during the war, when he was first seconded to the Mines Department and later to the Ministry of War Transport. He has had articles published in *The Economic Journal*, *The Times*, *The Journal of the Institute of Transport*, *British Transport Review* and *Lloyd's Bank Review*, and other economic journals. He is obviously, therefore, very well qualified to undertake the first of this important series of lectures.

The following paper was then read.

THE PAPER

In spite of the somewhat wooden, even metallic sound of the word 'structure', in fact the structure of any industry is an intensely human subject and problem. For it surely concerns what are the spheres of responsibility of persons (managers

at all levels) and groups of persons (Boards and Commissions), both for taking decisions and seeing that such decisions are carried out and put into force. Thus we say that the structure of an important part of our system of transport changed when, after the passing of the London Passenger Transport Act of 1933, the responsibility for providing most of London's public passenger transport services was transferred from being divided between five underground and tube railway companies (exclusive of the Main Line Railways), 14 municipal tramway undertakings, three company-owned tramway undertakings, and at least 61 companies, firms, or individuals operating 'bus services, to the London Passenger Transport Board consisting of seven persons. The final figure was 165 undertakings or parts of undertakings brought under a single control. In the words of Mr. Frank Pick speaking in this very hall some 24 years ago, 'The London Passenger Transport Board represents the amalgamation of 165 undertakings, or parts of undertakings, previously conducted as separate entities, even when associated together for certain objects or services.' Previously, there was a large number of relatively autonomous and independent persons (managers) and Boards (of directors) all making decisions more or less on their own both as regards investment, provision of services and fares, with a tender regard for their customers, present or future, but with little or no regard for what the others were doing. As a result of the change referred to, such responsibilities were transferred to a single body. The meaning of structure then is really the distribution of authority and/or responsibility for providing and pricing transport services.

That the subject is important need hardly be said. For it concerns such questions as, what is the appropriate size of firm or undertaking, or department, or Region within an undertaking, for the performance of this, that or the other transport service. Indeed, the whole issue of Big or Little, not to mention Centralize or Decentralize, is at stake.

But my general approach to the question this afternoon is not for the most part going to be what is 'right' or what is 'wrong'. That is essentially a political question, the answer to which depends above all upon what you want of your structure anyway. Rather, I shall attempt to explain the present structure in terms of two major influences that have been at work in building it over the last forty years, roughly that is to say, since the end of the First World War. First there have been the forces of the market—the spontaneous growth of institutions such as the joint-stock company, the private company, the municipal undertaking, the partnership and one-man business, in response to anticipated public demand as expressed by that public's willingness to pay for services rendered. 'Natural forces', some would say, although a more accurate description would be the free association between willing buyers and willing sellers. Second, there has been the influence of the State in shaping and determining the size, control and the degree of monopoly enjoyed by those responsible for providing public services. It is difficult to say which of these two influences have been the stronger. The present 'set-up' bears the indelible marks of both. In so far as our organizations and institutions are the deliberate result of Parliamentary

decisions and legislation, we, as citizens, are responsible. So that if by chance we find the aims and objects which inspired the generation who brought some of them into existence are no longer our aims and objects, we can with justification call for their modification if not their abolition. What we have made, we can un-make. I'm sure the institutions concerned would be the first to protest were we to compare them to 'scrambled eggs'!

In surveying the influence of the State over the period in question, that is from the end of the First World War to the present day, one can recognize two distinct periods. The first, lasting up to the General Election in the autumn of 1951, and the second since that event.

During the first period (1920–52) the influence of the State, reflecting a big majority of public opinion, was all on the side of bigness, 'controlled monopoly', and finally centralization. Thus under the Railway Act of 1921 some 121 separate railway undertakings were re-grouped into four amalgamated companies. And even those four were to act in concert on many matters, notably on charging policy. Or again, the London Passenger Transport Act of 1933, as already mentioned, brought together in all some 165 separate and relatively autonomous institutions under a single Board. The unanimity of Parliamentary opinion on this matter can be gauged by the fact that whereas this measure was first introduced by Mr. Herbert (now Lord) Morrison, then Minister of Transport in the second Labour Government, it was carried through a further stage by Mr. Pybus, then a Liberal Member of Parliament, finally to reach the Statute Book (after certain small amendments) under a predominantly Conservative Government with Mr. Oliver Stanley as Minister. Such was the unanimity of public opinion in favour of unification, the 'controlled' monopoly, in short of anything but leaving the customer to decide whose services he prefers, those provided by the large or the small, the big or the little, the municipally or the privately owned undertaking. But perhaps the most conclusive evidence of this dislike of the consequences of the market can be seen in Section 72, sub-section (3)d. of the Road Traffic Act of 1930, which lays down the matters to which the Traffic Commissioners must have regard in exercising their discretion to grant or refuse a licence. In this connection they must have regard to

> the needs of the area as a whole in relation to traffic (including the provision of adequate, suitable and efficient services, *the elimination of unnecessary services, and the provision of unremunerative services*), etc.

Thus, private enterprise, left to itself, was assumed to be guilty of the sins both of commission and of omission. It provided both too much and too little.

The process of enforced unification and centralization, the deliberate creation of degrees of monopoly far in excess of anything that would have emerged without State action, reached its peak in the Transport Act of 1947. But as Sir Brian Robertson has nicely put it, that Act 'could scarcely be described . . . as an act of sacrilege or revolution. On the contrary, it is much more probable that historians in the future will regard it, party politics notwithstanding, as a natural sequel to the course of events in the transport world in this country since the first war'.

It is doubtful whether British Transport will ever again be so centralized as during the years immediately following that Act and up to the passing of the Transport Act of 1953. Under the Railway Executive the former four main-line companies had been grouped into a single railway system, whereas British Road Services representing the nationalized sector of long-distance road haulage had over 40,000 vehicles in its possession at the end of each of the years 1950, 1951 and 1952. In addition, London Transport, many Road Passenger Services outside London, Canals, Docks and Harbours had also been brought under the direct control of the British Transport Commission.

What was the main idea behind this succession of amalgamations and financial fusions, this persistent drive towards 'controlled monopolies' and bigness? The concept drew sustenance from many rivulets of thought. The alleged wastefulness of competition, the economies of scale and ideological considerations no doubt played their part. But in my judgement by far the strongest and most persistent influence was the assumed desirability of a system in which by means of financial unity and bigness one form of transport could support (or be supported by) another form, in which one service could subsidize (or be subsidized by) another service, or in which one traffic could be carried at a high profit so that another traffic could be run at no profit at all and at a loss. For you cannot have extensive cross-subsidization or mutual financial support without largeness and monopoly. So long, therefore, as the object of policy was to cross-subsidize on a substantial scale, then degrees of monopoly and 'size' had to be established and maintained to enable such a policy to become effective. But those sizes and degrees of monopoly may not have been the most economical or 'best' for the service of the many markets concerned. In surveying certain developments that have taken place over the last forty years, I think this point is well worth bearing in mind.

Then came the passing of the Transport Act of 1953. Historically this Act, although slim and small compared with the nationalizing Act of 1947, was in my view of greater significance. For it marked a reversal of policies pursued by virtually all political parties for more than thirty years. It led to the abolition of the Railway Executive, and the pushing down of many of its responsibilities into the Six Regions where General Managers became largely responsible to no less than 6 Area Boards. It led to a drastic reduction in size of British Road Services, from over 40,000 vehicles to less than 15,000, and although the London Transport Executive was to remain, any further extension of the principle of such a Board to other road passenger undertakings outside London as envisaged under the 1947 Act was ruled out.

Let us now examine the development of two important branches of inland transport in somewhat more detail, in each case observing to what extent their present structure is the result of either 'market forces' or State action. The two branches selected for this examination are Road Haulage and Public Passenger Transport outside London. Brief reference will also be made to London Transport and the London Taxi-cab trade.

ROAD HAULAGE

Few branches of transport, or indeed of industry generally, can be said with more truth to have been 'the sport of politics' than Road Haulage. As is well known, it has played a prominent part in the drama of recent General Elections. I propose to give a brief history of its development.

By March, 1920, there were in Great Britain a paltry 100,000 registered goods vehicles on the road. Ten years later that figure had more than trebled. By 1938 there were 495,000, an almost five-fold increase in twenty years. After another twenty years the million mark had been passed, and in June, 1959, there were no less than 1,308,000 vehicles with carriers' licences in the hands of well over half a million operators.

Following the usual technical advances that accompany most wars, coupled with ex-servicemen's gratuities and some acquired knowhow, not to mention ex-army vehicles going cheap at Slough, the industry got off after the First World War, if not with a flying start, at least with a noisy one. Without much let or hindrance the industry grew apace, the figures of vehicles registered already given greatly *under*-showing the real growth of traffic carried or business done; since the carrying capacity, speed and 'user' of vehicles were, as the result of technical progress and improving organization, all advancing too. There were some capital losses, but thanks to the comparatively small amount of capital required to enter the business, such losses must have been small indeed compared for example with what was 'lost' during the early growth of railways.

As regards the industry's structure at that time, very little is known. We did not even know, for example, what proportion of vehicles were on the one hand public carriers or on the other carriers on own account. But from the evidence given before the Royal Commission one got the impression that apart from a very few fairly large undertakings, the rest were, for the most part, small fry, many being 'one-man businesses' with the wife in the parlour keeping, or not keeping, the accounts.

It was not until after the Road and Rail Traffic Act of 1933, and the introduction of the new kind of licensing which followed, that we came to know anything very much about its structure. But at the end of over a decade of growth, freedom of entry, struggle, hard work, some dangerous driving and some failures, during which time, however, road haulage had become successfully integrated into our system of production, distribution and exchange, the position was as follows (figures extracted from First Annual Report of the Licensing Authorities, 1934-5):

	'A'	*'B'*	*'C'*
Licence Holders	27,096	35,089	149,083
Licences Current	28,739	35,279	149,282
Vehicles Authorized	100,183	55,558	303,886
Av. vehicles per licence	3·49	1·57	2·04

The reasons why this structure on the one hand emerged spontaneously, and on the other, apart from the effects of the Transport Act of 1947, has tended

to persist and survive to this very day, are not far to seek. In general terms many of these services were and still are highly local and special to the requirements of particular places and industries. The requirements of the Potteries, or the special requirements of any country town come to mind. Close personal relationships involving mutual trust and a close awareness of the needs of the customer have been an essential element in the growth of this branch of transport. But even in those branches of the business where cost (and therefore charge) per unit of service, whether per package, sack, ton, ton-mile or, most vital of all, per vehicle-mile, must in the long term be the determining factor, it comes as no surprise that this structure emerged and still obtains. For to get the lowest possible average costs, as in every other branch of transport, the really important requirements are:

(i) the 'right' sized vehicle—where it is just carrying tonnage, large vehicles rather than small ones,

(ii) a high load factor—preferably a load in both directions, and

(iii) a high utilization of capital and manpower, i.e., a high vehicle-mileage per unit of time (hour, day, week or year).

On all three counts there is no obvious reason why the one-man business or small firm should not achieve these fundamental economies of operation as easily as a firm with a large fleet. The owner can buy the size of vehicle most appropriate to the trade he sets out to serve. Even if this entails one of the larger-sized vehicles, one or two of these is well within the financial resources of what would be regarded as a small firm. As regards the load factor, on long-distance work at any rate there is seldom any question of his doing the outward journey without first seeing to it that his vehicle is fully loaded. And with the help of a clearing house he has managed to get return loads from many big centres without the expense or necessity of building up any business connections in foreign territory. And as regards 'user', I have known quite small firms on long-distance work keeping their vehicles as much as 18 to 20 hours out of the 24 on the road for long periods. But wherever two shifts are commercially possible, a relatively high user is possible, even if there are only father and son available as drivers. Thus on each score, whether it is a matter of the appropriate size of vehicle, the load factor, or utilization, I don't say the small man has it, but he stands at no obvious disadvantage à propos the large firm. And if it can be proved that under certain other headings of cost such as maintenance—it may pay a large fleet to employ highly mechanized methods of overhaul and maintenance—or the purchase of spares and supplies generally, the large fleet can achieve some real economies not open to the 'small man', the latter may well make up for this in terms of lower overheads and the better and more personal service which can sometimes be legitimately associated with those who are seeking financial independence for the first time. It seems to me that such considerations not only go some way to explain the present structure, but are also germane to some of the transport problems of to-day.

Then came the licensing provisions of the Road and Rail Traffic Act of 1933, roughly dividing the industry into those holding A, B or C licences. The broad effect of the Act was virtually to stabilize the number of vehicles for which 'A' and 'B' licences were required and over which the Licensing Authorities had discretion in issuing licences therefor. But the number of vehicles under 'C' licences continued to grow rapidly and has in recent years passed the million mark. When I asked an 'A' licence holder some years after the passing of that Act how he had been affected by it, he said quite spontaneously that he had at least benefited from it to the extent that there was no longer any danger that his drivers would go off and start up in competition against him. Whether that is regarded as being to the credit or discredit of the Act will always, I suppose, be a matter of opinion. But I mention it as illustrating the kind of effect the licensing provisions of the Act must have had upon the growth of the industry generally.

The history of the road haulage industry since the war is too familiar to require recording in detail here. As a consequence of the Nationalizing Transport Act of 1947, by the end of 1952 no less than 3,774 (I repeat 3,774) separate long distance road haulage undertakings had been swept into what came to be known as British Road Services. This gargantuan operation has no precedent in political or economic history.

At the end of 1952 British Road Services had a stock of no less than 39,320 mechanically propelled freight-carrying vehicles available for public service, besides many trailers, service vehicles and private cars: a single fleet of over 40,000 vehicles. (This was quite apart from British Railways' Cartage and Delivery fleet of 14,720 mechanically propelled vehicles with their accompanying trailers, service vehicles and cars, also owned by the British Transport Commission.)

With a view to preserving the personal touch between customer and management, a determined policy of decentralization was pursued. Was it a success? That is not a question which lends itself to scientific analysis or answer—the more so because they were given a considerable degree of monopoly of long-distance public road haulage. But the fact that they made a net profit of £3·3 million in 1951 and £1·6 million in 1952 is an important one, and in many respects can be regarded as a real achievement on the part of those responsible. Without doubt, many customers were more than pleased with the services provided. Evidence of this lies surely in the fact that in spite of continued competition both from 'C' licence holders, the railways, canals and coast-wise shipping alike, they obtained custom worth nearly £78 million in both the years 1951 and 1952. Nor could anyone deny the high morale built up and maintained in what was then a new and virile organization. Then came the Transport Act of 1953 under which the British Road Services fleet was reduced from near 40,000 to the present figure of 15,000 vehicles only; the latter consisting of the main fabric of their trunk services.

Some indication of the present structure of the road haulage industry of Great Britain can be seen from the following figures taken from page 13 of the latest Annual Report of the Licensing Authorities (1957–8):

TABLE I

Licence	*Operators with Carriers' Licences*	*Vehicles*
A	13,267	69,233
Contract A	9,490	26,495
Special A	4,858	21,775
B	33,571	72,573
C	547,407	1,099,282
	608,593	1,299,358

These figures are in line with what Mr. K. F. Glover has recently told us. 'In June, 1959, there were 1,308,000 vehicles with carriers' licences in the hands of well over half a million operators.' In short, less than three vehicles per operator. Thus, in spite of the existence of British Road Services, the industry is still largely made up of small businesses.

LONDON TAXI-CAB TRADE

This seems an appropriate place to insert a note on the London Taxi-cab Trade. This trade provides an interesting example of a service closely and assiduously controlled by Law and Order, yet so far preserving the principle of freedom of entry both of capital and labour, provided certain conditions are complied with. To enter, the hurdle to clear is high indeed. But anyone can have a go. As the Runciman Report stated:

> The responsibility for licensing cabs is with the Commissioner of Police of the Metropolis who, under powers conferred by the London Cab Order, 1934, lays down Conditions of Fitness to which every motor cab must conform before it can be licensed to ply for hire in the Metropolitan Police District. The Conditions are designed for the safety and convenience of passengers and for manœuvrability in London traffic, and they include the requirement for a 25-foot turning circle as well as requirements as to steering, tyres, brakes, wheel track, springs, body dimensions and size of doors and seats. Any new type of cab has to be presented by the manufacturer for inspection at the Public Carriage Office of the Metropolitan Police, and if it conforms to the Conditions of Fitness it is passed as an *approved type*. Subsequently, when each individual new cab is first presented for licensing it must be accompanied by a declaration from the manufacturer that it conforms in design, construction and equipment to an approved type. *The Commissioner has no power to refuse the issue of a licence if the requirements specified by him are met.*
>
> The conditions for granting a cab driver's licence are contained in the same Order. An applicant for a licence must satisfy the Commissioner of Police that he is of good character and fit to act as a cab driver, and that he has a thorough knowledge of the metropolitan area (which may take anything up to a year to acquire). He has also to pass a stringent driving test in addition to the standard Ministry of Transport test. *As with cab licences, the Commissioner has no power to refuse the issue of a cab driver's licence if the necessary standards are complied with, and there can therefore be no arbitrary limitation of numbers.*

'BUS AND COACH

The history of the development of the omnibus and coach business (outside London) is not unlike that of road haulage, the controlling Act in this case being that of 1930. Although there had been a system of licensing before the passing of that Act, it had been administered by local authorities, some of whom, being deeply interested as large-scale operators of tramway undertakings themselves, could hardly have been expected to be unbiased in the exercise of such powers of licensing as they possessed. But apart from the restrictions some of them imposed, there was a large measure of freedom to develop both omnibus and long-distance motor coach services. The railway companies had no *locus standi* by way of objecting to the development of either of these types of service. Prior to the passing of the Act of 1930, there were over a thousand separate licensing authorities in England and Wales alone. In spite of this, there were large areas over which no licensing authority had any licensing powers whatsoever. And where such powers were exercised, there was no control over routes or services. The maximum penalty for plying for hire without a licence was 40*s*. One operator was convicted for this offence sixty-two times in eight months. in fifty-seven cases with the maximum fine. But it paid him to continue operating. The administrative picture was chaotic indeed.

What, however, was the actual achievement of this period of rapid growth between 1920 and 1930? Briefly, within little more than a decade a great network of omnibus and motor coach services had woven itself into the social and economic fabric of this country, which network in adequacy and popularity can, I think, be truly said to have become second to none in any other country in the world.

It was not until the appearance of the first Annual Report of the Traffic Commissioners that we came to know much about the structure of this branch of the public transport industry (see Table II below). In that Report it transpired that there were on 31st March, 1932, no less than 6,434 licensed operators in business, some public companies, some private, some partnerships, some just 'one-man businesses' assisted by the wife and family. There were clearly outstanding differences within the industry as regards both size and shape, as is still the case to-day. For example, of those 6,434 operators more than half owned either one or two vehicles apiece. At the other end of the scale there were 11 undertakings owning fleets of more than 500 vehicles. Of the 46,230 vehicles owned, roughly 30 per cent were in the hands of those owning less than 10 vehicles, another 30 per cent belonged to those owning from 10 to 200 vehicles, the remaining 40 per cent being owned by the really big battalions associated with such names as Tilling, Garcke, Barton, and of course Pick. Table II shows the number of vehicles owned in relation to operators as at March, 1932, and December, 1937.

The position after six years, during which time the Licensing Provisions of the Act had been in force, shows a definite decline of the small operator. All the classes of operators owning less than 100 vehicles show a decline both absolutely and relatively. But the change in structure, although clear, was not drastic. The Act had given protection to large and small alike, and the overall effect had been as much to stabilize the industry as to change it.

TABLE II

TABLE SHOWING NUMBER OF OPERATORS IN RELATION TO NUMBER OF VEHICLES IN MARCH, 1932, AS COMPARED WITH DECEMBER, 1937

Number of vehicles owned by each operator	*Number of Operators*		*Number of Vehicles*		*Percentage of total number of vehicles*	
	March 1932	*Dec.* 1937	*March* 1932	*Dec.* 1937	*March* 1932	*Dec.* 1937
1	2,760	1,846	2,760	1,846	5·97	3·72
2	1,336	883	2,672	1,766	5·78	3·56
3	755	638	2,265	1,914	4·90	3·86
4	418	398	1,672	1,584	3·62	3·20
5–9	680	587	4,197	3,636	9·08	7·33
10–14	162	166	1,881	1,877	4·07	3·79
15–19	77	46	1,277	770	2·76	1·55
20–24	53	27	1,146	594	2·48	1·20
25–49	80	59	2,699	2,023	5·83	4·08
50–74	35	35	2,179	2,081	4·71	4·20
75–99	18	17	1,553	1,453	3·36	2·93
100–149	18	26	2,259	3,160	4·89	6·37
150–199	11	11	1,918	1,906	4·15	3·85
200–499	19	23	5,797	7,028	12·54	14·18
500–999	11	14	7,114	9,223	15·39	18·60
1000+	1	3	4,841	8,713*	10·47	17·58
	6,434	4,798	46,230	49,574	100	100

* L.P.T.B. had 6,305 of these.
(Source : First and Seventh Annual Reports of the Traffic Commissioners).

Apart from what happened in the London Area as the result of the London Passenger Transport Act of 1933, the structure of the British Omnibus and Coach industry still bears the marks of that early period of growth 1918–1930. There are now three great groups of undertakings, namely those directly controlled by the B.T.C., the B.E.T. groups, and the great municipal undertakings, supplemented nevertheless by a very large number of small and independent undertakings. Conspicuous for size among the B.T.C. group are W. Alexander & Sons Ltd. (1,950 vehicles), the Bristol Omnibus Co. Ltd. (1,243), and Crosville Motor Service Ltd. (1,223). The three largest in the B.E.T. group are the Birmingham & M.M.O. Co. Ltd. (1,881 vehicles), the Ribble Motor Service Ltd. (1,272), and Southdown Motor Service Ltd. (977). Glasgow Corporation, Birmingham City, Manchester Corporation and Liverpool Corporation all have fleets of over 1,000 motor vehicles. Table III gives the present distribution of vehicles by ownership among these great groups. Table IV shows that there are still 3,959 operators owning less than 10 vehicles apiece, and only 52.86 per cent of vehicles are in the hands of those with fleets of 200 upwards (L.T.E. not included).

TABLE III

DISTRIBUTION OF VEHICLES BY OWNERSHIP

Class of Ownership	*Number of Operators*	*'Buses and Coaches*	*Trolley 'Buses*	*Trams*
LONDON TRANSPORT EXECUTIVE	1	7,363	1,536	—
BRITISH TRANSPORT COMMISSION: Provincial & Scottish Companies[1]	38	15,409	—	—
MUNICIPAL UNDERTAKINGS[2] ...	93	15,719	1,746	1,083[3]
BRITISH ELECTRIC TRACTION GROUP COMPANIES JOINTLY OWNED BY B.T.C. AND B.E.T. INTERESTS ...	38	11,259	—	—
INDEPENDENT PROPRIETORS WITH 20 VEHICLES AND OVER ...	4	234	—	—
INDEPENDENT PROPRIETORS WITH LESS THAT 20 VEHICLES ...	146	6,730	—	—
TOTAL ...	4,218	16,748	—	—
	4,583	73,462	3,282	1,083

Notes: (1) Includes two joint Company/Municipal undertakings (Keighley and York).
(2) Includes one undertaking (Sheffield) operating certain vehicles owned by the British Transport Commission.
(3) Includes 31 horse-drawn cars, operated during summer season (Douglas, I.O.M.).
(Source: Stats. Passenger Transport Year Book.)

TABLE IV

TABLE SHOWING NUMBER OF OPERATORS IN RELATION TO NUMBER OF VEHICLES IN MARCH, 1948, AS COMPARED WITH MARCH, 1958 AND 1959*

Number of vehicles owned by each operator	*Number of Operators*			*Number of Vehicles*			*Percentage of total number of vehicles*		
	Mar., 1948	*Mar.,* 1958	*Mar.,* 1959	*Mar.,* 1948	*Mar.,* 1958	*Mar.,* 1959	*Mar.,* 1948	*Mar.,* 1958	*Mar.,* 1959
1	1,246	1,162	1,237	1,246	1,162	1,237	2·24	1·76	1·87
2	632	748	763	1,264	1,496	1,526	2·27	2·26	2·31
3	426	608	615	1,278	1,824	1,845	2·29	2·75	2·79
4	318	413	411	1,272	1,652	1,644	2·28	2·50	2·49
5–9	839	959	933	5,564	6,230	6,013	9·80	9·41	9·10
10–19	392	382	397	5,134	4,954	5,246	9·21	7·48	7·94
20–49	150	144	130	4,352	4,275	3,887	7·81	6·46	5·89
50–99	59	57	58	3,774	4,054	4,009	6·77	6·12	6·07
100–199	36	39	42	4,744	5,385	5,733	8·51	8·13	8·68
200+	62	61	60	27,203	35,173	34,915	48·81	53·13	52·86
	4,160	4,573	4,646	55,731	66,205	66,055	100	100	100

(Source: Summaries of Annual Reports of the Licensing Authorities for Public Service Vehicles (1947-8 and 1957-9).

* Excluding L.T.E. throughout. On 31st March, 1959, L.T.E. had 7,213 P.S.V.s licensed.

How is the growth and survival of the small 'bus and coach operator to be explained? In this connection I shall consider one sphere of operation only, that of the small stage carriage operator in a rural area.

A small 'bus operator in a country district, who more often than not is providing a link between town and country, will have his garage and such office accommodation as he requires at the village end of his route and will thus avoid the higher rents associated with the town. Instead of a lock-up brick-built garage, an open shed will suffice. And as regards any office accommodation required, this will be provided either in connection with some other part of the operator's business (car hire or garage), or in his own house. In this way, a number of important overheads are reduced to a minimum.

But it is in connection with labour and labour costs (as everybody knows, much the most important single cost incurred in this branch of transport) that the small man has the biggest advantage of all. It goes without saying that there are no traffic inspectors. But it is the small man's capacity to employ himself and possibly members of his family for short periods (morning and evening peaks), spending the rest of the day doing some other quite different job (publicans are in the business) that gives the small man the biggest advantage of all in areas where traffic is either light or intermittent, or both. Thus it comes about that many services in rural areas which a large firm cannot work at a profit, committed as it probably is to guaranteed days and weeks and a severely limited number of 'split-shifts', can nevertheless be made to pay by a small one. The all-in operating costs of the small firm in rural areas are notoriously lower than their big brothers.

In this connection the employment of casual labour is another important factor, whether at weekends, or at busy holiday times. The most striking case of adaptation to local circumstance which has recently been brought to our attention was when a small operator, realizing that a conductor was required on his single-decker on only two of his daily trips (that into town in the morning and back in the evening), employed a regular commuter to perform the job just on these two trips, the principal reward being the two free rides involved. That is how the story goes anyway.

Lest I should appear to have drawn attention only to the advantages of the small and none of the disadvantages, let me say at once that my purpose has been to explain rather than to justify his growth and survival. On the side of buying fuel, tyres and spare parts, the advantage may well lie with the larger firms.

As regards the morale or efficiency of drivers and conductors (the difference between a 'good' and a 'bad' crew can easily determine the profitability or otherwise of a route), if the members of a small firm are likely to develop a stronger sense of 'esprit de corps' and financial involvement than a large firm, and that is my experience, then the small man has it. This is not to deny that tradition and leadership can evoke very high standards of morale and efficiency in large firms too. I have cases in mind.

I hope that what I have said goes some way to explain the growth and continued existence of the small 'bus operator in our national system of transport, and

I also hope that he will always be given a fair opportunity of finding those spheres of operation in which he is second to none.

LONDON TRANSPORT

Although it is impossible to give every branch of transport its due, I feel bound to add one comment to what I have already said as regards London Transport, which provides public transport by railway, 'bus and coach for approximately one-fifth of the population. Looking over the evidence submitted before the Joint Select Committee of both Houses on the London Passenger Transport Bill in its favour, and reading again the arguments set out by Mr. Herbert Morrison, unquestionably the father of the scheme, in his book entitled *Socialization and Transport*, I have little doubt but that the main thought behind that great experiment was the assumed desirability of mutual financial support between the different forms of transport—in those days the 'buses to financially support the tubes, the central 'bus services to enable non-paying services to be provided in the country districts and on the periphery of the area served, and through pooling receipts with the main-line railways, still further to depart from the principle of the financial viability of each and every form of transport, and of the various services within them.

WHAT IS THE 'RIGHT' SIZED UNDERTAKING?

Someone will no doubt ask me the question, what should we regard as being the 'right' size of undertaking or firm in any one branch of transport? As I have already pointed out, 'it all depends'. It all depends on whether or not you want a system of which cross-subsidization, mutual financial support and the provision of unremunerative services on an extensive scale are to be permanent features. And that choice is essentially a matter of politics, not of economics. It is for the Minister to decide that. Supposing, however, for the sake of argument, that the Minister did decide against such a system, and gave a clear directive to that end, then I suggest the following considerations should be borne in mind, at least in respect of public passenger and freight transport by road.

First, there is no 'most appropriate size' for the country as a whole. Each area, each locality, each 'market' has its particular characteristics and should be given individual consideration. In densely populated areas where high frequency services are justified, very large passenger transport undertakings may be 'best'. Not so, however, in thinly populated rural districts, or where infrequent and irregular services only are economically justified. Or again, in the case of freight services, the provision of an extensive parcels service calls for a completely different organization from local carrier work in the country or furniture removing. Thus, the real problem is not so much Big or Little, as seeing that they both get into those spheres in which they are truly 'best'.

Secondly, given a well-defined job to be done or service to be provided, then the size of firm or undertaking that can do it at least real economic cost should be the one preferred. But since in both the passenger and freight business 'quality (of service) counts', and what *is* 'best' is something purely relative, it is more

realistic to say that the undertaking (big or little) which, in the opinion of the customers, can give 'best value for money,' that is, provide the most popular, i.e., the most preferred, type of service, should be regarded as the most appropriate.

DISCUSSION

THE CHAIRMAN: As one would expect from a man of his distinction, we have had from Mr. Ponsonby an interesting and erudite paper. He has covered not only what has happened but the major influences which have brought about those happenings which have fashioned our transport industry as a whole over the last forty years. His views on these influences have been strikingly well thought out, so it seemed to me, and strikingly well presented to us. It interested me that he really concentrated his attention on the two basic influences: those of the State and of the market. If I have not misunderstood him, one can sum up by saying that the market influences are sustained by consumer choice, while the State influence must basically be sustained by the views of the electorate. It made me wonder what might be the interplay between those two in view of the common identity in so many cases of the voters and the consumers; but that field of inquiry must wait for another day.

A more interesting and more vital question that he posed himself was, what is the right size for a firm or undertaking in the transport industry? I was delighted for him to have covered the answer—it all depends! I agree with the hint he tactfully dropped, that a doctrinaire approach in the past has tended to lead to a distortion of the pattern; and if you think that is too political a remark for me to make here I would ask you not to take it as such, because I think there is a growing feeling that politics should be kept out of transport as far as possible. I certainly would adhere to that view myself, particularly as there is, equally, a growing feeling that each form of transport should be relatively free to make its own contribution to the system as a whole. It should develop on a free basis between the systems, so that each can offer to the customer what it can best do. The best contribution of the system in this country is for there to be this proper consumer choice of the transport that will suit the consumer best, and for the system to be able to meet that requirement. Consequently, perhaps, the market influence is going to have an even greater effect from now on, and there will be consumer choice.

In introducing Mr. Ponsonby I mentioned this question of social implications which are going to have a big effect. First of all, rising income; secondly, the availability of mass-produced goods and the changes that have taken place in facilities for entertainment. In the world of technical change, just to quote two very simple examples, this gives one such things as the small, cheap and efficient motor car, and motor scooters, advancing by leaps and bounds, and bringing with them certain changes in the pattern of social behaviour which are also affected by other changes in means of popular enjoyment, particularly by the influence of television. And all these developments can only leave us with the conclusion that much serious thought will have to be given to their social implications in the period ahead of us. Many of these problems, indeed, have been explicit in what Mr. Ponsonby has been telling us, and he has given us a most useful and firm basis for the hard thinking that we are going to have to do about these problems.

MR. P. K. SHAHANI: Mr. Ponsonby talked about public road haulage, but he did not compare it with private road haulage. There has been a tremendous growth in recent years in the number of 'C' licences, and I would like to ask him whether the structure of public road haulage handicaps it as against those who have the right of 'C' licences?

THE LECTURER: In other words, does the fact of its being rather 'atomistic' in structure (apart from British Road Services) handicap it in any special way? I should

not have thought such a structure handicaps it. But I do think that the licensing provisions of road haulage and the way the Licensing Acts are interpreted are a handicap to the public carrier in competition with a 'C' licensee. The public carrier is not allowed to extend his fleet freely if he wants to, and is not allowed to develop to the extent which his ambitions and abilities might justify. That is a very real handicap.

Also, one of the effects of the 1953 Act, as I understand it, is that it is difficult to move into other areas or spheres of operation if business is rather slack in your own. (The tramp at sea keeps down his total average costs by moving into different trades from season to season without hindrance.) That is a fact which must keep up the cost of operating on the roads, because operators cannot get as good a use over the year out of their vehicles as they would like.

Thus, I do not think there is much wrong with the structure, unless you include those institutions which few would deny prevent the fullest possible development of that branch of our system.

MR. C. E. W. LONG: Railwaymen have grown up speaking and thinking in terms of the 'permanent-way'; by this I mean not only the iron road but also an atmosphere, discipline, organization and structure.

During the last forty years, since the Railways Act of 1921, mutual discipline on the part of the interests involved—governments, omnibus and railway companies, their employees and the public—has benefited all.

This 'permanent-way' national discipline has, however, been considerably weakened since 1953 and continues to be weakened.

Bearing this in mind, and the first practical rule of economics being 'make the best of your resources'—is it wise to permit further slackening of national transport discipline, organization and structure, and the resultant destruction of fine national assets and thousands of lives annually?

THE LECTURER: I think the indiscipline we permit in parking our cars along the roads and getting in the way of others, thus causing economic loss and delay to traffic over a wide area, is a kind of indiscipline which is wrong and I deplore it. I think the idea that a relatively free market necessarily involves 'indiscipline' is quite erroneous and wrong. Because time was running short I omitted to read a whole passage in my paper on the London taxi-cab trade. This is a very interesting example of a trade hedged round with every sort of Law and Order. The angle at which the front wheels can turn is laid down, every detail of the cab is prescribed by Order, and you have to get through a very difficult knowledge of London test to become a driver at all. Now that seems to me to be a highly disciplined, controlled business: a cab driver hardly dare breathe when in sight of a constable, he knows it is life or death with him if he gets on the wrong side of him! Yet there is still freedom of entry into this industry both of capital and labour. The idea that a liberal economy means that Government does nothing, is quite erroneous. Of all systems, I think a 'free' system requires the most intelligent Government supervision, care and knowledge of the industry; it is much simpler to put an industry in the hands of a Board and wash your hands of it.

As regards discipline in general, I should have thought that the discipline of the market is usually a very severe one, and nothing I have said has implied that those in the taxi-cab trade or the road hauliers were well off and getting away with it. On the contrary, they are working very hard and some of them are finding it difficult to keep their heads above water. So I think that the discipline of a reasonably competitive market is just as effectively severe—and possibly more so—as other kinds of restrictions.

MR. D. ROBERTS (Shell-Mex & B.P. Ltd.): If the work of freight transport is to deliver goods at the right place at the right time and without damage, why is it so

important for the consumer to have a choice of road transport? I should not mind if the goods came by jet 'plane or any other method so long as they arrived at the right time.

THE LECTURER: I think the answer to that one is that just as in passenger transport, traders don't just want their goods carried. 'Quality (of service) counts.' There are a lot of personal factors involved. Some of us take a private hire car just because it is a very personal service. All passenger transport is very personal, but it is no less personal than the carriage of freight. It is no good telling a trader that all he wants is his goods carried. He wants them carried at a particular time, with a particular flow, with particular conditions attached. The need for quality of service, besides just carriage, is just as important in freight as in passenger transport, and that is why I think the widest choice possible should be given to British industry generally to choose the kind of carriers they want.

MR. RALPH CROPPER: Mr. Ponsonby has quite rightly and very clearly drawn attention to the strength of the small operator both in the 'bus industry and in the haulage industry. He has not touched upon the effect of legislation on that particular matter. Would he express an opinion as to whether the 1930 and 1933 Acts, and the subsequent Acts, have or have not helped to retain the small operator?

THE LECTURER: You mean what would have happened if the Acts had not been passed? I wish I could answer that one! It is pure speculation, and I am not going to say anything definite about it. Looking at the figures, it is clear that the small man has progressively diminished in proportion since 1930, and although the Act did on the whole 'protect' both big and small, it has, I believe, tended to diminish the small man's relative and actual share. So, as regards the small man in the 'bus business, I should have thought there would have been more of them had the Act not been passed; but it is pure speculation.

As regards road haulage, I think my story about the road haulier—the drivers not being allowed to compete—probably kept them down, but it is impossible to say what would have happened. I think the Act was stabilizing, and it would have been different now, because one knows many enterprising middle-sized road hauliers who would have gone ahead like 'billy-o' and might by now have had large fleets but for the restrictions on their activities and growth; no doubt also some inefficient firms have similarly been protected into a continued existence which they may not deserve. So the answer is that I do not know.

BRIGADIER-GENERAL SIR OSBORNE MANCE, K.B.E., C.B., C.M.G., D.S.O.: Mr. Ponsonby in his paper laid some stress on the question of cross-subsidization. He attributes it as the principal motive for the nationalization of the railways, and he also pointed out that it can only be carried out under monopoly. Now may I point out that, first of all, we never have had a monopoly and you will not have one so long as the 'C' licensee and the private car are in no way included in it. It seems to me, as a result, that the time is coming, with the rapid increase of both the 'C' licensee and the private car, when the cross-subsidization of the fixed costs of the low grade traffic, or the cross-subsidization of non-paying services, will have to be dealt with in a different way. Assuming that transport is to be run on a commercial basis—and we are anxiously awaiting for the Government to decide that point—it may be necessary to raise the charges on the lower grades of traffic. That, of course, would alter the price relation between these lower-grade commodities and other commodities, and it might have rather widespread effects; but they would be mitigated if, as seems likely, the same action were to be taken in other countries as well as our own.

As regards non-paying or non-commercial services (as I prefer to call them, because there are some non-paying services which are commercially desirable), in some way or other the operator will have to be paid for these. For example, take the

very glaring case of rural 'buses: one assumes that before you pay an operator to carry out a non-commercial service every effort will have been made to reduce the cost of such service. The possibility referred to by Mr. Ponsonby of the small man being employed in rural 'bus services is quite an attractive one, and it might pay to bring him in to undertake these services. The machinery for future cross-subsidization depends on a Government decision—in fact, on several Government decisions. First of all, somebody has to decide which non-commercial services are to be maintained, and somebody has to find out what is the cost. The Government has to decide the very important question, who is to pay? Then there are the details of how the money is to be collected and how it is to be paid. Some day, when decisions have been made on these questions, Mr. Ponsonby or possibly one of his descendants will be able to bring his paper right up to date!

THE LECTURER: As regards the suggestion that nationalization was solely due to this motive of cross-subsidization—I do not quite feel that. I think that cross-subsidization was *one* of the important motives behind such Acts as that of 1947, which is a different thing. In the summer of 1949 Mr. Barnes assured a large number of railway employees that it was only necessary for road haulage to get going properly and then the B.T.C. would be sufficiently well off to pay good wages to all railway men! Obviously, one of the implications there was that once you get a sufficiently combined service then, if one part is not doing so well, the other comes to the rescue.

Another matter raised by Sir Osborne is the idea, which has been held for many years, that if you let competition with the railways go on, then they would have to put up their charges against the heavy traffic. That in my view is based on a fallacy: the fallacy that the low-grade traffic is unprofitable or even the least profitable. It may earn less per ton per mile of coal and coke carried, but such traffics make such jolly good wagon loads and sometimes such jolly good train loads, that there is ample evidence that they by no means are the most '*un*profitable' traffic. There have always been two views about this, and my own view is that it is not so much the heavy or the light that is profitable or unprofitable; it is rather the traffic that goes along the trunk routes in big trains and at speed that is profitable and the traffic that goes on the light lines, and on stopping slow trains, that is unprofitable. Sir George Beharrel said that the traffic he found the most profitable on the old North-Eastern was the coal traffic.

MR. J. A. B. HIBBS: My experience of the passenger road traffic industry, and the pattern of cost of operation expressed in pence per mile, shows that the lowest cost lies with the small firm, that the highest cost very often lies with the medium-sized firm, while the very large comes somewhere between. I should like to ask Mr. Ponsonby's views on the fact that the fare structure in the industry in service work is (I think it is generally agreed) related to the cost of the larger firms. It is their applications for increases that tend to determine the adjustment of the fare structure. Now, that seems to me to give a certain advantage to the small man, whose costs are lower, and I am wondering what the effect of that has been over the years on the general pattern of the industry.

THE LECTURER: I think that is a very important factor, which should be borne in mind by the traffic commissioners. My own feeling is that fares should normally be the decision of those who operate, but I think the traffic commissioners ought to be able to intervene when something is done which is clearly contrary to the public interest. I think your implication was that sometimes the small operator actually charges more than he would have, had he been free. Is that what you mean?

MR. HIBBS: Yes.

THE LECTURER: Well, I think that is obviously contrary to the interests of the travelling public, because it is the sort of standardization which is unjustified by the

circumstances. It is crucial to the whole development of transport that you should not prevent the fullest development of one market because something else is happening in some other market; you are manifestly denying people the fruits of hard work and technical development by imposing something which is just not germane to that particular market. But as to the effect of that kind of thing on the general structure, I have not thought that one out.

THE CHAIRMAN: Despite the temptations offered by certain aspects of some of the questions which have been put, I have remained dutifully, and some might say obstinately, your Chairman!

As I guessed at the beginning, Mr. Ponsonby has made a valuable and interesting contribution to our knowledge and thinking on this very vital subject. His paper was outstanding in itself and as a contribution to the whole series of lectures which will be given over the next three years. I should like to express to him our appreciation of the tremendous trouble and care he has taken both with his paper and with his answers to the questions.

The vote of thanks to the Lecturer was carried with acclamation and, another having been accorded to the Chairman upon the proposal of Mr. Oswald P. Milne, the meeting then ended.

FUTURE DEVELOPMENTS OF THE INTERNAL SYSTEM OF TRANSPORT

A paper by

D. L. MUNBY, M.A.,

Reader in Economics and Organization of Transport, University of Oxford, read to the Society on Wednesday, 4th May, with Major-General G. N. Russell, C.B., C.B.E., M.Inst.T., Member of the British Transport Commission and Chairman, Eastern Area Board, in the Chair

THE CHAIRMAN: Mr. Munby is a former scholar of Rugby School and of Wadham College, Oxford. He was a lecturer at Christ Church for a year or so, and then lecturer in political economy at the University of Aberdeen. To people in the transport industry he is quite an historic person, since he is the first holder of the first Readership in the Economics and Organization of Transport at Oxford University. This Readership was made possible by many transport and other industrial concerns who provided the wherewithal, and we in the transport industry are deeply grateful to them for doing so. We congratulate Mr. Munby on his appointment, wish him success in the future and hope he will be able to contribute something to the fund of knowledge of transport matters. Up to date he has been engaged in making a general review of the position of transport in the British economy. Those are pretty wide terms of reference, but they will give him a chance to move about and get in touch with people and really see what is going on.

The following paper was then read.

THE PAPER

1. INTRODUCTION

Only a rash man relies on forecasts of the future, as the experience of economic forecasting well shows. The future is uncertain, and we just do not know enough about what is likely to happen. This is particularly true of transport, where not only have we an absurd inadequacy of information, but where there are so many factors involved. Transport is a very complex industry serving a great variety of needs and providing many very different kinds of service. To be able to forecast what is likely to happen to all these various services would be the work of a superman. It is better to say nothing.

Nevertheless, I shall make some statements about future trends as they seem likely to me. We all do in fact have a view of the future, whether or not we state it as a forecast. To have a view helps everybody to clarify their minds to-day; so long, that is, as we do not try to pretend that these views of the future are scientific statements. To take an example, the number of motor cars in Britain in the future will doubtless double within a very short space of time. In the

post-war period, there has been an eight per cent annual rate of increase in the number of motor cars. But if we deduce from this that the demand for motor cars will always increase annually at eight per cent, we are likely to make a mistake. There is no law of nature, no scientific law, that says that the number of motor cars must increase at eight per cent per year, though some forecasts of demand for some industries have sometimes tended to assume that there was such a law of constant percentage increase.

Transport is, and always has been, a dynamic factor in economic development. Technical changes occur so rapidly as to make it impossible to know what the future holds in store. First the railway, then the motor car, then the aeroplane, and in the future maybe the helicopter and the hovercraft. We cannot tell exactly in which direction technical change will prove most fruitful. It may reduce the costs of the more conservative and ancient forms of transport more rapidly than the costs of the more modern forms, though one may, perhaps, doubt it. (But this has happened in other industries, such as electricity.) This rapid rate of technical change is one major reason why we cannot put too much reliance on forecasts.

Another reason why it is extremely difficult to forecast the future of the transport system is that so much depends on government action. If the transport industries were entirely subject to the market, and their expansion or contraction was entirely determined by the laws of supply and demand, it would be easier, though still very difficult, to determine future changes. If we could find out something about how much people are ready to pay for different forms of transport and how the costs of these services are likely to move, then we might conceivably be in a position to make some limited predictions. But, in fact, neither the demand for transport nor its costs depend entirely on the market. Government policy steps in to control the various forms of transport in various ways and to force transport undertakings to provide services at less than cost; it artificially raises their prices or subsidizes certain services. The future thus depends not only on what is likely to happen in the economic field or in the way of technical change, but also on major issues of government policy.

2. THE FUNDAMENTAL ISSUES OF POLICY

At the moment the transport system is run neither entirely on business principles nor entirely as a public service, as with the Health Service or Education. It is an extraordinary mixture of the two systems, just as the control of public transport allows both for competition and for deliberate planned monopoly elements; but this mixture has not been designed to serve some overall aim of public policy. To a large extent it depends on historical accident and on the inconsistent policies successively followed by different governments.

There is a fundamental divergence between the commercial principle and the public service principle, and it is worth while examining this for a moment. A good deal of transport still follows the latter principle. That is to say, though the whole enterprise, however defined, may have to try to cover its costs, no attempt is made, when the public service principle is followed, for each particular

service to pay its way. Some services are run at a loss, others at a profit, and one service subsidizes the other. This tradition of cross-subsidization is deeply embedded in the whole structure of the transport industry. More recently, however, there has been a revulsion against it. The principles of the 1953 Transport Act, if logically followed out, should lead to the complete abandonment of cross-subsidization; but this has by no means yet happened.

If we try to forecast the future on the assumption that a large element of public service will still remain in the transport system, we are confronted with very serious problems. The principle of itself does not tell us how much service is to be provided. We no longer ask whether people are prepared to pay for a particular service, though we may ask whether other people are prepared to pay in some other direction. But the operator will always be forced to face the question whether or not to keep on a particular service, to abandon it, or perhaps to extend it. He will be faced with political pressures from particular groups such as the rural dwellers who find themselves without public transport, and he will have to make up his mind whether to meet this demand. A logical public service criterion would involve these decisions being made irrespective of cost. In practice, transport operators cannot do this. They have to try to balance their books somehow or other, which makes it even more difficult for them than for other providers of public services.

In the case of an ordinary public service, such as Health or Education, there is some standard which can be used to assess whether too much or too little is being provided. Standards of health, education, even housing, can be fairly easily devised. It is, however, much more difficult to devise transport standards. How much transport ought people to expect? What sort of need is there for transport? It might be agreed that communications must somehow or other be kept open, but this still does not answer the question as to whether the 'bus service from the village to the market town should be once a week or once a day or several times a day. Once we begin to ask these questions about the quality of service to be provided, it seems impossible to find any satisfactory objective criterion.

In practice, where these decisions have to be made on the public service principle, they are made by politicians according to political criteria. If the West Highlands can mount a sufficiently large lobby, they will be provided with a subsidized transport service. Or it may be the commuters from Brighton who refuse to accept a raising of season ticket fares, and manage to put political pressure on the transport operators. No doubt the politicians are expert at deciding the strengths of various lobbies and the relative importance of the interests that lie behind them; this is after all their business. But if this is to be the background for transport, then it is difficult to see how a mere economist can say anything very much about the future. I would prefer to think that we might move towards a more rational transport system based more nearly on the ordinary commercial and business principles that people should pay for what they want to buy. These principles do not necessarily conflict with the public interest as rightly conceived. I turn therefore to a consideration of what is

involved in following out the ordinary commercial principles so far as it is possible in the transport field.

If the transport system were run on commercial lines, so as to make operators pay for the costs they incur and collect them from those who benefit from the services, it would mean quite a revolution for many parts of the transport industry. Strangely enough, the revolution would probably not be so great on the railways as elsewhere.

First, the railways. The 1953 Act has, by and large, provided the framework for a fully commercial railway system. What is now required for the logical completion of this policy is the abolition of the Transport Tribunal and the remaining nineteenth-century restrictions. But assuming that the present maximum charges provide for a real maximum, the railways now have the opportunity to charge the costs that are incurred and to adapt their charges to the market. In practice, there seems rather greater reluctance to make this true of passenger services than in the case of freight. There are indeed major problems of capital reorganization, and it may well be that much past railway capital will have to be written off. If this goes no further than a necessary writing down of capital that can in effect earn nothing, then no economic damage is done. But the proper application of commercial principles naturally means that railway users should by and large pay for the track costs that they incur collectively.

Far more serious are the restrictions that remain in the field of road services. A logical following out of the commercial principle would mean the abolition of restrictive monopolistic licensing in road haulage and road passenger transport, which has survived from the '30s, and which is quite out of tune with the anti-monopoly legislation of the post-war world of full employment. There is no question of the benefits to be gained by control of vehicles, control of hours of work, and the provision of scheduled services for passengers. But a licensing system that ensured these benefits need not be so restrictive as our present one, which is necessary only if we accept a large measure of cross-subsidization as essential, or if we believe in the desirability of monopoly privileges for road operators.

More difficult and more serious than the matter of railway track is the question of properly charging for the use of the roads. Without going into details, it can quite simply be said that our present methods of charging are likely to lead to considerable overcharging for the use of certain under-utilized roads, while at the same time the road user who creates traffic congestion does not in any sense pay the full costs for which he is responsible. He himself does not pay the very heavy costs, which he causes other road users to bear, and which they cannot escape. The question of track cost is in effect not a problem for the railways so much as a problem of the roads. Arguments about the total amounts collected from road users in relation to the total amount spent on the road system are by and large irrelevant. The real problem and the real question is whether particular road users pay enough for the particular services they demand. If there were some attempt to approximate more closely to the economic costs of providing and using particular kinds of roads, then the pattern of the transport

system would be very different from what it is to-day, as can be seen very clearly in the case of urban transport.

There might indeed be a case for a monopoly solution of the transport problem, if it were in fact possible to control all forms of transport; but this cannot be done. There is little logic in having a system in which some parts are entirely competitive and work on a commercial basis, as is the case with coastal shipping, while others are subject to licensing and restrictions. The road haulier is himself subject to the competition of 'C' licences, and, unless these are restricted, a monopoly operator must have difficulties in working on commercial principles. Most important of all, of course, is the private car, which cannot be controlled in any serious kind of way.

The future of transport in Britain clearly depends on how far we go in carrying out the principles of the 1953 Act. Britain has the opportunity to build up a transport system that is both technically efficient and commercially viable, if it logically follows out these principles. It may be that governments will not want this to happen and will deliberately restrict transport, encouraging one particular form at the expense of others. Who can predict the vagaries of politicians?

3. THE FUTURE OF FREIGHT TRANSPORT

We may look forward to something like a doubling of the gross national product in say twenty-five years. How is this likely to affect the demand for transport? Recent experience in many countries suggests, as indeed one would expect, that the national product expands more rapidly than the demand for freight transport.[1] As standards of living increase, less money is spent on food, and industrial processes make less use of bulky raw materials; a higher proportion of final consumption takes the form either of services or of very highly finished industrial products whose value is very much greater than their weight. If the gross national product doubles in twenty-five years, it is therefore very unlikely that the demand for freight transport will increase at anything like this rate.

The very limited information we have about the carriage of freight in this country shows how large is the volume of goods carried by road in relation to that carried by rail.[2] It looks as if road haulage now carries a larger ton-mileage than the railways, and, though coastal shipping has an important part to play in carrying bulky commodities, it represents only about half the railways' ton-mileage. It does not seem likely that these trends will be reversed. They reflect basic features in the economic situation.

(*a*) ***First, the railways.*** The fact that the vast bulk of railway freight traffic is either coal or minerals[3] reflects the fact that the railway system is essentially a product of the early stages of economic growth, and is not of its nature so well adapted to the needs of a more highly developed economy. It is clear that for many years ahead coal will be used in large quantities in British industry and in British homes; it is equally clear that the railways will continue to carry a large volume of coal traffic. But coal is essentially a declining industry, not only because of the fall in exports, but more importantly because of the competition from oil. The

British Transport Commission is entirely realistic in assuming that in 1963 its receipts from coal class traffic will be less than in 1957 and 1958.[4]

Similar considerations apply to minerals, though for rather different reasons. One might expect that, with the growing expansion of the steel industry, the minerals traffic on British Railways would increase considerably. But in fact this is not the case. For example, the ton-mileage of minerals carried between 1948 and 1958 decreased by about 14 per cent, while steel supplies increased by nearly 30 per cent. The reasons for this are no doubt various, but essentially they reflect the fact that an increased output of steel is produced from a smaller relative quantity of raw materials. It is therefore, reasonable to expect no more than a 'modest' increase in revenue from this source.[5] Similar considerations apply to other carryings of minerals, even though some of them may be for other prosperous industries such as building.

Far more difficult is the category of merchandise and livestock, where the railways meet with competition from the road haulier, and particularly from the 'C' licence vehicle. One can assume that the modernization plan, with its few highly efficient marshalling yards and its fast freight trains moving between major centres, will enable the railways to compete effectively for many kinds of traffic. One should assume that in the near future some economic solution should be found for the transfer of goods from road to rail and vice versa. One would expect the development of an efficient through system of freight traffic based on road at both ends with the long intermediate hauls by rail. So long as British Railways are competitive in their approach and imaginative enough to provide the proper services and to sell their facilities with vigour, they should get some reasonable share of the merchandise traffic; but it seems difficult to imagine, even under the best possible conditions, that they can expect ever to carry the large bulk of the country's merchandise. Whatever happens, railways are likely to be highly important in Britain. They will always be large carriers, but one cannot see them as the predominant freight carriers in the future; unless of course a government deliberately forces traffic back on to the railways on the grounds of some social advantage which is not reflected in normal economic costs. Above all, what matters is how far they are able to sell their services to the public at the right price, and to convince the public that the services they offer are of a good quality.

(*b*) *Road Haulage.* There are two well-known trends which predominate in the field of road haulage. Firstly, the increase in the number of 'C' licence vehicles, but secondly, and perhaps more important, is the trend towards larger vehicles for all categories of licence users.

In spite of this latter trend, lorries in Britain are still small in relation to those to be found, for example, in America. It seems highly likely that the size of lorries will continue to increase. Indeed technical progress in lorries may be faster than the more dramatic forms of technical progress to be seen in the modernization plan of British Railways. This might be one good reason for being sceptical about too bright a future for British Railways.

The growth of 'C' licences is no doubt due to various forces, but it is important

to notice how much of this growth is merely due to the growth of the distributive industries. As a higher proportion of national output takes the form of services, it is natural that shopkeepers should expand and should buy more vans. It is equally natural that manufacturers, now more concerned with advertising their brands, should put their own vehicles on the roads and use them to deliver direct to shops. These trends are an inevitable accompaniment of a rising standard of living and have nothing to do with the competition between the public carrier and the private firm's own vehicles, or with the competition between road and rail.

The future of this kind of service is indeed not assured. It may well be that, with the abolition of re-sale price maintenance, shops will not have the same incentive to provide delivery services whether customers are ready to pay for them or not. Similarly the advertising value of a delivery van, in which a manufacturer delivers his goods direct to shops, may well be seriously affected by more radical methods of dealing with traffic congestion in cities. I shall come back to that later.

Undoubtedly some of the growth of 'C' licences is due to the monopoly restrictions on the other licences and the upheavals through which the road haulage industry has gone in the last few years. But something like it would probably have occurred in any case. If all sections of the freight haulage industry were allowed to compete in economic terms, then manufacturers would be in a position to decide whether they wanted to bear the costs of a private system of transport, taking account of the convenience this might offer for them. Common sense would suggest that there would then be a place for all forms of road haulage.

A fully commercial system of road haulage would involve the road hauliers in paying the proper costs of the roads they use; maybe less in the countryside, but probably very much greater in the towns, when account is taken of the addition to traffic congestion. It would involve the removal of licensing restrictions of practically every kind. For example, there would be no restriction on 'C' licence holders carrying goods for hire and reward if they wanted. The logic of this policy might well lead to the development of public clearing-houses where traffic demands could be sorted out. Part of the problems that arose in the past were due to the failure to provide a proper market framework for the very complicated demands and supplies of available traffic.

(*c*) *Inland Waterways and Coastal Shipping*. These industries, like the railways, have depended very heavily on bulk traffics. In the case of coastal shipping a major part of the traffic is coal and cement, and the same reasons that lead one to suggest that railway carryings of this kind of freight will not expand very rapidly, if at all, would lead one to suggest the same about the future of water traffic of all kinds.

4. PASSENGER TRAVEL

A rough calculation suggests that about 40 per cent of the total passenger-miles travelled in 1958 were by private car, 35 per cent by public road passenger services, and just over 20 per cent by rail.[6] The predominance of the private car is obvious; the continued expansion of its use is the one certain element in the future of passenger travel. What are the prospects of the other passenger services?

(*a*) *Public Carriers.* Outside London, public road passenger services have slowly expanded in the post-war period, but it looks as if 1955 marked the peak. The decline that can be traced since then has shown itself dramatically for many years in London Transport. In London both road and rail have been affected. Even taking account of the special factors in the London situation, one might well think that what happens to London to-day will happen to other cities in the near future, as it is indeed beginning to happen there. The other sector where the car has made serious inroads is in the countryside, where the rural 'bus services go the same way as the branch line.

Passenger travel on the railways has kept up remarkably well, better than one might have expected. But this may well be merely the reflection of the fact that in the last few years fares have not kept pace with other prices and in particular with 'bus fares. One would expect a considerable shift between 'bus and train, if relative fares alter a great deal. It is not, therefore, clear what justification there is for the Transport Commission's estimate of a 15 per cent increase in passenger traffic by 1963, when coupled with an admission of the need for increased fares.[7]

American experience on the Eastern seaboard suggests that there may be little future in rail passenger services, except for commuters. The 'bus and private car at one end of the scale take away what the aircraft leaves from the other end. But one must not take the American parallel too far. There is a sense in which all travel in Britain is local in terms of American standards. There is not the same scope for air travel, even if the helicopter makes greater advances than it has hitherto shown evidence of doing. One would expect that a place would still remain for the railways to carry long-distance passengers, in competition with both road and air. With a proper charging policy based on real costs, the long-distance coach may suffer most.

(*b*) *The Private Car.* Whether or not cars compete in terms of cost with public transport (and it is not difficult to show that they normally do not), their number will continue to grow. The convenience and flexibility of the car to the private user would ensure this, without any consideration of social prestige. One may hope that tailfins and chromium will not become such powerful symbols of social status as they are in America, and that cars may be bought more for use than display. Nevertheless, they will be bought, as they are in Sweden as well as America. Every family will expect to have its car as well as its television set.

There should be little difficulty about travel between cities on a nation-wide network of motorways. Those who fear a loss of amenity in the countryside will need to keep a critical watch on their design and siting. But there seems little reason to worry otherwise about the space they will require—at least not yet in Britain, where there is still a lot of space available. Indeed, what may be more serious may be the attempt to improve local roads to serve the omnivorous appetite for speed. If every village was to be linked by safe straight roads suitable for cars travelling at 40–50 m.p.h, then indeed there would be an end to the countryside as we know it. It may be that we will have to come to a rural speed limit for the side roads! The real problem for the private car will be the city.

5. PROBLEMS OF URBAN TRANSPORT

If what is happening in American cities gives us an idea of what may happen in Britain and Western Europe, it certainly provides no pattern for a solution. American experience shows that building large motorways between cities and providing for the commuter to travel from the outskirts on major highways to some point near the centre, does not provide for what happens when the motor car arrives in the centre of the city. The Americans are faced with as serious a problem as we are, though they have the advantage that their cities are modern and that their character does not depend on the small scale of their buildings as is the case with Britain. We have really to face the whole question of urban transport afresh with imagination, to see if we cannot find a solution which so far has eluded the Americans as most other peoples.

It is very clear that the private car owner in a city does not pay for the costs he creates in terms of traffic congestion. Nor does he pay a fair price for the use of highly expensive land in central areas. It can be argued that the congestion of offices and commercial premises in city centres is encouraged by the fact that land is by and large used freely by the motorist in places where it is, in fact, worth a great deal to other users. Whether this is so or not, it is clear that the problems of urban congestion, and all that is involved with them, will not be solved until the road user abandons the idea that he has a right to the roads, and we accept the fact that the use of roads in cities involves the use of a highly valuable economic asset for which people should pay in some form or other.

The problem of urban transport can be regarded from the point of view of three different kinds of users:

(*a*) the road user who wishes to travel in the city, perhaps at some speed, and who is unable to do so at the moment because of congestion; (*b*) the commuter who wishes to travel to and from his work which tends to be concentrated in the centre of the city; (*c*) the person who wants to shop, or to deliver goods, and who wishes to get in and out of the centre and stay there for a short time. Each category presents a different problem.

(*a*) First, the commuter. It seems fairly clear that the cheapest form of transport for commuters in large cities is railway or public road transport. On the face of it, the private car carrying one or at most two people provides a very uneconomic use of space and adds to congestion costs quite disproportionately to its benefit to the user. If all vehicles on the roads were charged in some way or other to take account of congestion costs, it seems very unlikely that there would be many people using private cars to travel to work in the centre of London. A major problem of the future is to devise a simple method of levying such a charge.

One way to charge the commuter some of the cost of the congestion he causes, is to make him pay an economic price for his parking space, whether in the street or in a garage. This still does not adequately take account of the congestion he may cause in the streets, but a solution on these lines would tend to lead in the right direction. If it were consistently followed, one would expect that it might

well prove economic for the commuter to travel so far by private car, and then park on the outskirts of the central district, to which he would move by some form of public transport. The size of this central district would clearly depend on the size of the city.

In the case of small cities, we could well envisage a situation where no private cars were allowed within the very central district. Here one might expect that only road traffic would be allowed for purposes of delivery or other essential needs. Such areas could be restricted to pedestrians, or alternatively it would be possible to provide for a free service of public transport, or even, for example, free provision of bicycles. If we could clear the central areas of these cities of the rush, crush and noise of fast traffic, we would have gone a long way to providing a twentieth-century pattern of city living, on a truly human scale. But there is no reason why all cities should follow one pattern.

(*b*) The shopper. If space on roads is properly charged for, this problem should fall into perspective. Either the shopper must pay for the right to park his car or the shop must buy the land for its clients. There is no reason for parking charges to discriminate in favour of the shopper as against the commuter. Any social argument is against encouraging commercial concentration.

Similarly with deliveries: the road vehicle, which delivers goods to shops, clearly creates a great deal of congestion, and it may be that, if properly charged for, a new pattern of development would emerge. It might then become sensible to set up clearing-houses on the outskirts of the centres of reasonably sized cities, to which goods would be delivered from the factories and from which they could be sent to the particular shops. It does not seem on the face of it very sensible that dozens of different manufacturers should be delivering in turn to particular shops in a crowded and congested traffic street in the centre of a city. With a proper charging policy, reorganization might become economic, as it would, for example, if loading and delivering were restricted to certain very limited hours.

Clear delimitation of the space available for parking and for transport will help to sort out the traffic problem, and, when the various users are properly charged, it should be possible to develop a rational pattern of road use in the central areas of cities.

(*c*) This would also help towards our third problem. Where traffic is to be allowed in cities, it should be able to move fast if it wants to. With the solution of the parking problem and with the elimination of unnecessary road users through proper charging policies, the way would be open for traffic to move fast and safely in cities. The contrast between American and British cities is nowhere more marked than in this field. No doubt the Americans have the advantage of a more modern layout with their grid-iron street pattern; but it still strikes the casual traveller to America most markedly, not only that the traffic moves faster but that it is much safer for pedestrians to cross the street.

Whether a solution to city traffic problems comes about through properly charging the costs of traffic congestion to those who create them (either because they refuse to stagger hours of work, or because they wish to put their vehicles

in places which interfere with other road users), or whether it comes about through direct planning, a solution of some kind is necessary, and is indeed possible. There is no reason why we should not look forward to civilized cities, where we can take advantage of all the benefits that the motor car has produced for us without an excess of accidents, where pedestrians can walk about in comfort and ease, and where there is space for everyone to do that which he wishes to do and for which he is ready to pay the appropriate cost. What is required is a combination of policies, both economic and social. It means that the traffic engineer and the town planner and the economist will have to work together to provide a comprehensive soluion. What has happened in the past (and is indeed happening to-day) is that each particular problem is treated by one set of specialists, who disregard what the other set are doing. That way lies chaos.

There is no difficulty at all in producing chaos in our cities. American experience, as well as that of our own country, shows where the road to chaos leads. It is, of course, possible that in the future we will merely continue to carry out this recipe for chaos. But there is an alternative, and if we were ready to use our opportunities imaginatively we could achieve it, without turning our cities into an engineers' paradise of automatic car parks and clover-leaf crossings.

6. TRANSPORT AND THE PATTERN OF CIVILIZATION

We have seen how transport is strangling modern cities; and yet the modern city is the creation of modern transport. Every city is the result of certain transport developments, and the modern city is no exception. There would be no cities of the size we know to-day, if it was not possible to transport people from their homes to work. The price we pay for this is congestion, noise and disorder. If modern transport has made modern cities, it is not yet clear that it has produced a suitable environment for human beings.

But the principle does not merely apply to the growth of modern cities. It applies to the whole pattern of economic and social development. Nineteenth-century industrial growth was largely a product of the railway and the steamship. The first quarter of this century introduced the motor car and showed a foretaste of that which we are now experiencing to the full. The second quarter of the twentieth century can be regarded as the age of the domestication of the aeroplane. No doubt it will take many years for us to work out a proper pattern of development for a motor car and air age. But there is a sense in which we can perhaps regard these as forms of transport of a past era.

If transport developments determine the pattern of our civilization, it is not sufficient merely to look at to-day's demands and provide a transport network to meet these needs. We have to plan our transport in advance, taking account of the developments that will follow from transport itself. That is to say, we need, when planning investment in the major forms of transport, such as new roads, new airports and new forms of air service, to take account of the whole pattern of economic development. It is absurd to plan to decentralize industry and population from the large centres on the one hand, and at the same time to

provide a transport network which encourages settlement in these same large centres.

A proper commercial system of transport does not preclude transport developments being linked with the whole pattern of industrial development. Just as a proper location of industry policy can be framed according to a planned and guided pattern of development while the firms involved remain under private control, so transport facilities can be provided on a commercial basis and yet be subject to a plan which treats them in relation to the whole pattern of development. We have suffered too much in the past from transport investment taking place in a piecemeal fashion, unrelated to what is being done in other fields. For the future we must do better.

If the second half of the twenteth century will show the full fruits of what the motor car and the aeroplane have brought upon us, we can still look forward to new developments. In a sense, the aeroplane and the motor car belong to the past. What then will be the new transport developments of the future? Of course we do not know. It may be that in the hovercraft is to be found something which will displace the motor car, and avoid the need for roads, though this might seem utopian at the moment. It may be that suitable methods of electronic control will enable cars to be operated safely and flexibly at high speeds on motorways. (Strangely enough, such a development would make the motor car approximate to the railway train.) It may be that the future lies in the development of small helicopters or some other form of air transport, which is not so prone to accident or with so unpleasant a noise as present forms. We do not know. It is possible that some totally new form of transport will have emerged by the end of the twentieth century, as unlike the motor car and the aeroplane as these were unlike the railway. We are always tempted to extrapolate from our present situation and refuse to face the fact that the future will be as different from the present as the present is from the past of only thirty or forty years ago. While to-day we have to solve the problems that the motor car has thrust upon us, it may well be that our descendants will regard us as utterly lacking in imagination in our acceptance of the motor car as a permanent feature in our lives. Life would be very much pleasanter for everybody if we could devise some means of transport more suitable to a human scale of living than the motor car!

Whether or not some new form of transport develops, whether or not we have to put up with our present forms of transport, it will still remain true that we shall always depend on some form of transport and that the form we use, both for goods and services and in all the various ways in which we use it, will be a dominant feature of the pattern of our lives. Not only in its economic influence, bu also in our social habits and in the way we live, we cannot escape from transport.

REFERENCES

1. *Economic Survey of Europe in* 1956 (U.N., 1957), chaps. 5–6.
2. *The Transport of Goods by Road* (Ministry of Transport, 1959).
3. 52 per cent of all freight receipts including parcels, mails, and collection and delivery, and more than two-thirds of the ton-miles in 1958.
4. *The British Transport Commission. Re-Appraisal of the Plan for the Modernisation and Re-Equipment of British Railways* (Cmnd. 813, para. 71.)

5. Ibid., para. 74.
6. The figures are as follows (in million passenger-miles) :

British Railways	21,700	19%
London Railways	3,300	3%
London Road Transport ...	5,600	5%
Other Bus and Trolley ...	35,800	31%
Cars	46,800	40%
Motor Cycles	3,600	3%
	116,800	100

Estimates are published for British Railways, London Transport, and B.T.C. road passenger services. It is assumed that other road passenger services show the same occupancy rate per vehicle as B.T.C. Provincial and Scottish services. Estimates of vehicle-miles for cars and motor cycles are taken from the Road Research Laboratory counts (*Roads in England and Wales* 1958/9. (H.C. 1959/60, no. 42), Appendix XVIII, Table 10) ; it is assumed that there are 1½ persons per car. (Even with one person per car, the volume of travel remains greater than on British Railways.)

7. *Re-Appraisal*, paras. 85–6.

DISCUSSION

MR. P. K. SHAHANI: Does the lecturer not think that the introduction of the monorail could be an effective solution to the problem of traffic congestion, in terms of both economy and convenience?

THE LECTURER: I know little about the relative cost of a monorail or a subway, so I must just say that I think this is one of the possibilities that will have to be considered, and no doubt is being considered, by the people interested.

MR. G. VIVIAN DAVIES: Unless we can find some way of providing ourselves with wings we are not likely to evolve a revolutionary new system of transport in the foreseeable future. I therefore feel it would be very much better if we directed our attention to the problems that are before us at the moment. I believe that most of the London traffic congestion is due not to the professional man like myself, or to the commercial traveller who hops about from place to place, but to the commuters, and therefore we must direct our attention to them, plus the delivery vans, which again are a great source of congestion. The only solution is to do what they have done in Scandinavia, and insist that the man who puts up a new building, however big or small it is, provides not only for the cars that he has himself but also for the vehicles that visit that building. That, I think, is a prerequisite for any kind of planning and if it can be done in Scandinavian towns which are largely built on rock, I see no reason why people cannot do it in London, which is built on clay.

The biggest offender in this respect is our mammoth London County Council. It has for years had the power to force the developer to provide underground garage accommodation, and it lost a unique opportunity to enforce this when all the bombed sites were built over; those bombed sites provided wonderful parking accommodation. I happen to live in St. Marylebone, and there is a new block of flats going up on the corner of my road. The Borough Council insisted on underground garage accommodation, which is easy to provide here, yet the developers appealed to the London County Council and got that important requirement withdrawn. What a fantastic state of affairs, which I believe prevails in other large cities as well! I am told it would take a couple of years for Mr. Marples to change all this unless he takes power upon himself (and I think he would be well advised to do so) to prevent any new building going up unless the owners have his authority, and this authority should only be granted where proper garaging facilities were provided. These need not necessarily be in the basement. It is perfectly simple to put a hoist in the corner of many of these new buildings and hoist cars up to the roof. Many buildings are provided with flat roofs, and the distributed weight of a car being comparatively small, it would

be quite easy to park twenty or thirty cars on the flat roof of a large building, the space required for the lift being very small indeed. I think that the solution of this problem is one of the most fundamental requirements before us at the moment.

Again, I think Mr. Marples is absolutely correct when he says you should separate pedestrians from vehicles. I have for years been advocating elevated pavements, and I am glad to see that at last some notice is being taken. Elevated pavements are not difficult to construct, and even existing buildings can be altered so that it is possible to provide them. Think of the advantages; you have extra road space under the pavement for delivery vans, or you can increase the width of the road if you so wish, or cars can be parked in that space.

Lastly, Mr. Chairman, I am convinced that it is high time a lot of long-distance traffic was moved from the roads back to the railways, and I will give you a short example which shows how easy it is to do it. A few years ago I had to move some very heavy steel castings, each of some 8 tons in weight, from Chesterfield to Glasgow. Nobody thought of sending them by rail until I found that one of the heavy lorries had got buried in snow as it was a bad winter; so I was forced to contact British Railways, when I found that they had an excellent service. A special representative came to see me, and when I asked him, 'Why don't you do this all the time?' he said, 'I am only deputed to deal with special loads'. Surely if we dealt with every heavy load in that way we might get a lot of the traffic back to the railways?

THE LECTURER: I think there is a lot to be said for elevated pavements and new buildings providing adequate parking space. This is obviously a matter which the planning authorities ought to take account of. The only trouble is that the amount of rebuilding is only a fairly small proportion of the total amount of buildings which exist in a city, and you have got to deal with your existing buildings and with the use of the existing roads, which are going to be much as they are for many years in most cities.

MR. D. J. REYNOLDS (Road Research Laboratory, Harmondsworth): I think most economists would probably agree with Mr. Munby's analysis of the congestion problem and of the difficulties of accommodating the motor car, but he did say that he had some further objections to the motor car. I should be rather interested to know what these particular objections are.

THE LECTURER: The social objections—things like road accidents, noise, the poisoning of the atmosphere. The basic fact about the modern motor car is that it can go at such a speed that the human mind is not really capable of adjusting itself rapidly enough, and this is one of the causes of accidents, and probably one which in principle is irremovable. Therefore, I wish we could devise a machine which was less lethal and either more subject to an automatic control which can move faster than the human mind, or more adjusted to the human scale. This is the kind of thing that I had in mind.

MR. M. A. CAMERON: The lecturer rather suggested that railway costs were the same right the way through the country. Probably he did not mean quite this, but actually the cost of conveying passengers on a branch line can be very markedly different from the cost of conveying them on a main line. I wonder whether in advocating commercial charges, he was advocating one level for a main line and something totally different on the different branch lines?

THE LECTURER: I did not mean to suggest that costs were the same; I meant to suggest rather the opposite.

I should have thought the proper pricing yardstick was that passengers travelling at different hours of the day or on different lines, in so far as they incur higher costs, should pay for them—in so far as it is possible to break them up. You obviously have to take a certain amount of rough with the smooth, but in general it seems to me that

any principle of charging roughly the same fare per passenger mile throughout the whole country is thoroughly undesirable. The fares should be much more flexible in relation to these varying costs on different lines.

MR. E. A. W. DICKSON (Chief Passenger Officer, British Railways): While the speaker was talking about the future I was looking into the past as it is depicted in front of us now, in that canvas by Barry on the north wall ['Crowning the Victors at Olympia'], and it occurred to me that even in ancient times there was congestion on the roads! Now the point is, who in those days paid for the roads? I should like to ask the speaker whether there might not be some possible thought for the future in reconsidering the past. In other words, is there any case for the cost of track (either a road or railway) being assumed by the State, with the users, either railway or road users, paying their due share of it?

THE LECTURER: I have not got a very good view of this picture, but I think it represents a public procession, doesn't it? You may be interested to know that when I was sitting watching the May Day parade in Belgrade on Sunday and a number of heavy tanks went by, I said to someone sitting by me, 'This, of course, causes a lot of damage to the roads, doesn't it?' He said, 'Oh, yes, and I have no doubt that the Lord Mayor of Belgrade will send in a bill for the damage done to the roads by the May Day procession, and I expect that he will put in very much more than the real damage so that he can make some road improvements as well'. Well this seems to me the right way to deal with the matter!

I am not quite clear what was involved in your point; if it is a question of the State taking over part of the cost of the track, the question still remains as to how much should be paid by users. If you mean that both road and rail tracks should be taken over by the State and then somehow or other the State should collect this by a tax on both, the difficulty is that road users ought to pay for road costs and rail users for rail costs. I do not like any idea of putting all these track costs into a pool and then collecting them somehow or other. This is another form of cross-subsidization.

MR. C. COURTNEY-CRAMP: I think Mr. Munby said that in the case of local or urban passenger transport, if the people can exert a little bit of political pressure they can manage to get what they want. I do not know whether that is quite correct. There are in existence people known as licensing authorities who are responsible for the licensing of all transport vehicles under, I believe, the Road and Rail Traffic Act, 1933, and it is their job to hold the balance, to the best of human ingenuity, of the transport on the roads, and to see that there is a fair amount of every kind of transport that is wanted.

Then Mr. Munby went on to refer to the question of cost in relationship to the using of the road by all forms of users. If we go back, there was at one time a thing, which was raided by the then Mr. Winston Churchill, known as the Road Fund. Well, that Road Fund does not exist at the present time, having been disposed of because of the raids made upon it. I think the road users now pay a colossal sum in taxation and licensing fees, and that surely entitles them to a certain amount of use of the road.

Again, Mr. Munby referred to something which was a little bit closer to the heart of a number of people in this audience—that there should be some sort of charge made for taking up space for delivery. I do not know whether he would appreciate what a colossal amount of reorganization that would require, not only as far as delivery services are concerned, but also with regard to the allocation of that cost, which I believe in most cases would have to be passed on to the consumer. And I still wonder, even if that were done, whether it would have any effect whatsoever upon the fundamental fact that, whatever the congestion, there must be people who have to deliver the goods to the shops, otherwise the goods would not be there to be sold. Otherwise, slowly but surely your cities would stagnate from lack of supplies.

THE LECTURER: The first point about the licensing authorities I would answer like this: I don't quite know how a licensing authority would decide whether a service is to be withdrawn or not, because this public service criterion doesn't provide any clear objective kind of guidance. In effect, I take it, your licensing authority is a sort of political arbiter, who is listening to the complaints of the inhabitants of some area, and he has to make a political decision as to whether these people are really all that important. I do not think the licensing authorities can have any objective criterion. In a sense this is a rather undesirable form of political decision because, as far as I understand it, it is subject to no check and licensing authorities are not even consistent, as between different areas, in their decisions. So you get arbitrary decisions taken in different parts of the country. They are, no doubt, men of common sense, and the final decisions may be right—but the decisions are, in principle, arbitrary.

On the second point, the Road Fund, I think this ties up with the third point. My main purpose was to get away from the idea that the cost of the roads is merely the average cost of repairing roads and making new roads throughout the whole country. The cost of some roads in the country is merely the cost of the maintenance required to keep them going; there may be no other costs apart from maintenance and certain administrative costs. In the city the cost of the road is quite unrelated to the cost of maintaining it. The main cost is the cost of congestion that you cause to other people, and there is also the cost of the use of a valuable piece of land, which presumably has some kind of market value. And both these costs are not tangible, but they are nevertheless real economic costs to the community and these have to be borne by the road users in the city. Now if the effect of charging for these costs is that the cities will stagnate, I put exactly the same proposition the other way round by saying that, in allowing free delivery services without restriction, you encourage commercial congestion and you encourage shops to concentrate themselves centrally because they do not bear the cost for it. If you alter the policy, you get another city pattern, which is precisely the pattern that the planners are more concerned to achieve, where you do not get the concentration of commercial development. You would call that stagnation of our cities; I personally would be inclined to think that this would produce a rather better pattern of city life than the kind of highly concentrated one we have at the moment.

SIR CHARLES GOODEVE, F.R.S.: This last point raised by our lecturer is a key one in the question of the future of public transport—to what extent does the private motorist, compared with the rider on the 'bus, pay properly for the road he uses? Most people would say at once that he pays in tax on petrol alone much more than he should. He believes this because the total collected in taxes is greater than the total spent on maintenance, on supervision and on new road construction. (The inclusion of the latter is quite illogical—it is very unusual to add capital investment to a running cost—but is a hang-over from the Road Fund concept.) Most people forget that the enormous network of roads owned by the Government has a very great value in monetary terms. It is right and proper that Government should draw a revenue on this asset, perhaps 5 per cent p.a. on the total value. It is difficult to determine the value of roads and to arrive at a fair revenue. My guess is that this, at 5 per cent, would itself exceed the total taxes on road transport.

Mr. Munby has suggested that this capital charge for a road could be calculated from the value of adjoining property. There are some theoretical objections to this but it is probably the only method that comes near being practicable. My first question is, what is the order of magnitude of the value of our roads and how does, say, 5 per cent of this compare with our taxes on road transport?

I am not altogether happy about our speaker's contention that cars in the rural areas where traffic was very thin, did pay for their 'track costs'. This depends on his method of assessing value, but I should have thought that the value of a road was roughly proportional to the flow of vehicles upon it, and therefore that individual

rural and urban road users pay approximately the same share of the capital charge on the road that they use.

We must get this point out of the way if we are to get a proper balance between public and private transport. My fellow members of the audience will be horrified when I say that the tax on users of the road ought to be increased if we are to achieve that 'free' economic situation which alone can lead to this proper balance. If the situation is complicated by the need to distinguish between rural and urban users we will have difficulty in getting this much needed reform.

Is there, therefore, very much difference between the charges that urban and rural road users should pay?

THE LECTURER: About the rural roads: I did look recently at some figures very roughly trying to take account of maintenance cost for rather broad categories of roads in relation to the usage of the road, to see how this compared with the petrol tax. It suggested that for some roads the petrol tax was in very considerable excess of maintenance costs; but the figures were much too general, and I think this is certainly a question that needs looking at in relation to low utilization. It may be the other way, of course, that we over-maintain that rural road. I do not see quite why one should charge any capital value to a rural road. I take it that nobody wants to buy rural roads; these will have little value to a farmer to buy; there might be the odd one that you would get a few pounds for, but on the whole they have little capital value. The only question then, is, are the people who are using them ready to pay the physical cost incurred in keeping them open? And if they are paying that, well and good, you want to use these things as much as possible.

In the case of the urban road, the capital value is quite a different thing. It is the rent that you could get for allowing the road to be used for traffic, or for selling it to a developer. I should tend not to look at this in terms of working out a capital value, but rather in terms of the rent that this road could earn if a commercial exploiter were to have it. (Maybe this would not produce the ideal situation. As in a public utility, you might have to restrict him in some ways, because a purely monopoly approach might be the wrong charging policy, but one might look at it in terms of what a private owner of this piece of land controlled in the public interest would be expected to do.) To put a figure on it is of course impossible, but it is common sense to suggest that in large cities what the road user ought to pay is very much in excess of the petrol tax and the licence duties and so on.

BRIGADIER-GENERAL SIR OSBORNE MANCE, K.B.E., C.B., C.M.G., D.S.O.: Mr. Munby differentiates between a transport service run entirely on business principles and one that is run as a public service. Let us hope, for the sake of the taxpayer, that the Government will decide that transport is to be run on business principles. Incidentally, that solution does not preclude a monopoly.

Social considerations make it necessary that there should be a certain number of what are commonly known as non-paying, but I prefer to call them non-commercial, services which are not justified on commercial grounds. It will be for some Government organ to decide which non-commercial services should be run, and then, under the commercial system, the transport operators would have to be paid commercially for the cost of those services. If this is agreed in principle, the machinery both for the decisions as to which services could run and as to the cost of such services would have to be studied. It may be done by the traffic commissioners or by some other machinery, but the important thing is that each service should be related to the cost of providing it.

It is admittedly not possible to lay down an objective criterion as to what services should be provided, but I suggest that if you had the machinery, in due course a workable code would evolve.

The next step—if indeed it is not the first step—is for the Government to decide who should pay for the cost of these services. The usual answer is the Government, or to put it less agreeably, the taxpayer or the ratepayer. There is, however,

the alternative advocated in certain quarters that the cost of these non-commercial services should be borne by the users of transport as a whole, including the private car and the 'C' licensee. In other words, transport as a whole would subsidize its essential non-commercial services. With a comparable basis of taxation of the different forms of transport this would mean that the contribution towards the cost of non-commercial services would be based on the extent of user. If anybody should toy with the idea of pooling track costs he would find the machinery at hand. The first thing, therefore, is to decide in principle what policy is desired, and then sit down and work out its execution, obtaining supplementary decisions on the points which are bound to arise.

On the question of licensing road haulage and passenger services, I should agree that in a fully commercial system complete freedom is implied, but I suggest that there must be some protection, depending on the degree of obligation or implied obligation accepted by the operator. It is obvious that if an odd 'bus can nip in and take traffic during the most paying periods or a 'C' licensee could take the most paying traffic without any obligation whatever, the regular 'bus services and the regular goods services would soon come under the category of non-commercial services and would have to be dealt with, as I have suggested above. Moreover, it is in the public interest to avoid cut-throat competition with the risk of an inadequate standard of operation. For these reasons I would not rule out such protection or monopoly as is practicable as part of the measures for reducing the cost to the community of non-commercial services.

As regards road taxation: Mr. Munby refers to the trend towards larger vehicles. One reason for this is that the taxation of large vehicles is far less per ton mile than for the smaller vehicle, and I have a note here of an example. A 2- to 3-ton petrol lorry pays ·620 pence per gross ton mile in fuel and licence taxation compared with ·176 paid by the 16-ton diesel lorry. The question of road taxation is dependent on major decisions of policy, which there is no time for us to go into to-day.

THE LECTURER: I should certainly agree that, if you are going to run non-commercial services, it is very important to have some machinery for deciding which are to be run. I should go on to say that, if you are going to run these, the ordinary transport operator must clearly be given a special subsidy for dealing with it. It is not at all clear what merit there is in collecting the cost of these special subsidies from transport users in general rather than from the general public. If you collect them from the general public, the general public then at least knows what it is paying. We can now find out exactly how much the Government is subsidizing shipping in the Western Highlands for the benefit of the very small number of people living there, and if any Member of Parliament wishes to raise the matter it is there in the estimates. If you levy it from all the transport operators, it is much more difficult to see where the subsidies are going. This, I think, is probably the main argument in favour of keeping any subsidies you want for non-commercial services quite clear from the ordinary commercial account of the transport operators.

As far as the taxation of larger vehicles is concerned, I should have thought this was right, because unless it can be shown that the damage to the road and the extra congestion caused by vehicles increases disproportionately to their size, one would expect the proper cost of a vehicle with regard to licensing duty to fall per ton-mile, just as one would expect, if vehicles were properly charged for their use of the road that, though 'buses would have to be charged more in taxation than the private car, yet they would obviously benefit because they can spread this over a larger number of passengers. So I am not worried by the fact that the licence duties fall per ton mile; this seems to me what ought to happen, and it is sensible unless it can be shown that the costs of congestion and of damage to the road rise very much more rapidly than one would think they do.

MR. NOEL MOFFETT: I should like to ask Mr. Munby two questions about town planning. The first concerns the motor road in the city and particularly in London. In his 1943 County of London Plan, Sir Patrick Abercrombie proposed a number of motor roads leading into London from more or less all directions, but he did not suggest how the motor road should be dealt with in Central London itself. Recently there have been many suggestions about London, and one of them was that the new motor roads should be raised above ground level so as not to interfere with the existing traffic. Many of us were horrified at that suggestion, at the idea of these giant motor roads striding over our heads, but if you go to Kensington Gardens and look at the road which separates the Gardens from Hyde Park you will see that it is raised over our heads, and the park dips down below, and it is in fact rather a pleasant experience to sit in a deck-chair in the park and watch the traffic at a reasonable distance. I would ask Mr. Munby's view, not only as an economist but also as a human being who is obviously a lover of London, of this suggestion to have raised motor-ways in the city.

The second question is about segregation of road traffic. At the start the railways ran alongside the roads and it did not occur to anyone for a long time to separate them; but now railways are separated from roads, they run on their own tracks, and they are divided up into categories, freight trains and passenger trains and underground trains. Is it reasonable, do you think, to look forward to a very great increase in road usage and an absolute necessity to segregate road traffic of one type from another type? At the moment we have bubble cars, huge private cars, tiny private cars, scooters, motor cycles, push bicycles, enormous lorries, and little trade vans which run about in all directions. It seems to me that if a serious attempt was made to separate different kinds of road-users, and to separate one type of road from the other, then instead of a giant motor road soaring over our heads we should have thin ribbons of roads, each ribbon carrying one type of traffic only, and that would not lead to the chaotic traffic conditions which we have to-day.

THE LECTURER: I am fairly convinced that we do need to have a Royal Commission perhaps or some kind of joint inquiry of economists, transport people, town planners and others, to look at the problem that is developing in the larger cities in terms of motor cars, transport and planning of development. I am quite sure that there is need for a really profound study of this issue—perhaps something like the pre-war Barlow Commission.

It would be awful if we had too many of these overhead motorways in our cities; we do not want to turn all our cities into copies of Los Angeles. On the other hand, in some cases this might be the best solution. One has probably got to look at this matter more selectively and with more discrimination. For example, if one goes to Boston one sees what these overhead loops and underground roads do to an old city of character, and how completely they destroy its character—and Boston is more like a European city than most other American cities. Discrimination is the problem, for the town planner and everybody else, and the same goes for segregation. This is one of the things one hopes for, but I had not thought of it before in terms of quite such refined segregation. I notice in the city in which I live, Oxford, that, though it is a city of bicycles, no provision is made for segregating them from motor traffic, which could be quite simply done in many parts of Oxford; the roads are large enough, and if we had cycle tracks as Dutch cities do (for small motorized bicycles too), everybody would be very much happier. This is one of the fields for exploration of new urban patterns.

MR. C. E. W. LONG: I touched upon the question of discipline at the last meeting, and the very composite and complete lecture we have had this afternoon I think points to a future which is anything but systematic. Discipline of course implies system, and the good old railways did have a system. Somebody wrote to the *Evening News* a little while ago pointing out that rail traffic controllers ' . . . could probably

manage the roads', and that might be remembered in considering what ought to be done with the great confusion that faces us.

I remember being taught, in Movement Control, that an even flow is the essence of a transport system. We live in a free society, which perhaps has no discipline; one sees it in the newspapers, one is seeing it in transport; one almost might think that the motor car is going to disappear before we get any system. But a moment or two ago a speaker touched upon a simple possibility in suggesting different tracks for different types of transport, something which might give an even flow. One can perhaps turn back and imagine what would have been said of the railway one hundred years ago if killing, maiming and poisoning people had been on a scale similar to that which obtains on the roads to-day. How these accidents are taken into the economic cost I don't know. They are not accidents, they are tragedies. Let us get back to the system that we have known in the past. Let us learn from it, let us try to copy from the railways and put some system into the road traffic of Britain.

THE LECTURER: I would accept that. I just make this comment: it is interesting that the Americans, who on the whole, I should have thought, are much more individualistic and less tradition-ridden and disciplined than we are, have a far more disciplined arrangement for roads than we have.

MR. HAROLD CLAY: We are attempting to face a social problem, but we are not prepared to face up to some of the social implications. References have been made this afternoon to road costs, but what about the contributions that the roads make other than as a means of travel? Take for example the recent developments in London, or take the motorway which will link London with Birmingham; they talk about taxing the person who uses the road directly at a higher rate than he is taxed at the moment. What about the socially created values which will emerge when you develop along both sides of the M.1, a development which could not have taken place without the social activity that has been put into the initial enterprise? These should come back to the community in some form.

If we are going to get any solution at all to the problem of transport, we have got to look at it as a social service, necessary for our economy, necessary for a good life. Reference is made to the question of whether it would not be a good thing if we got away from some of our irritating restrictions and controls—what we have to do is to look back at the situation in London and elsewhere before a form of regulation and control came into existence. We had if anything a more chaotic condition then, and with many fewer vehicles on the roads. Listening to Mr. Munby this afternoon one would have assumed that practically the whole difficulty of congestion in connection with London is due to the private car, but is it? How many of the 'C' licence vehicles that are now operating are really socially necessary, and would, in anything like a reasonable transport system, be running at all? Can you hope to face this problem unless you look at transport as a whole, with the various transport agencies making the contribution that they are best fitted to make at any given time? We have got to ask ourselves whether the public good has got a chance against a series of private interests; the situation that we are in at the moment has been created because we put private interests before the public good.

THE CHAIRMAN: I think it is time I brought this extremely interesting discussion to a close. I am sure you do not want me to try to summarize. That is too difficult. We have just finished up on the note of transport as a social service. We started, I think, with transport as a commercial enterprise. There we have the whole range in front of us. I have listened carefully. Opinions seem to range from the viewpoint that there is a commercial future for railways; that road transport is not taxed enough; that the licensing system is not needed, and that we must have more discipline! Yes, I am sure of that. We also heard a remark of Mr. Munby's at the beginning

which we heard last week from another source—that the pattern of transport should be subject to an overall plan which we have not got at present.

Mr. Munby, on behalf of us all, thank you very much for a most stimulating paper, and thank you very much for answering the questions in such a forthright way. I hope we shall hear more of all these views. I am sure that the paper and discussion will receive full publication and the ideas will be spread abroad. It has in my view been a stimulating and thoroughly worth while afternoon.

A vote of thanks to the Lecturer was carried with acclamation and, another having been accorded to the Chairman upon the proposal of Mr. Oswald P. Milne, the meeting then ended.

BRITISH SHIPPING: ITS PRESENT POSITION AND FUTURE PROSPECTS

A paper by

SIR ROBERT ROPNER,

Past President, Chamber of Shipping of the United Kingdom, read to the Society on Wednesday, 11th May, 1960, with P. Faulkner, C.B., Deputy Secretary, Ministry of Transport, in the Chair

THE CHAIRMAN: Sir Robert Ropner is not only a practical shipowner, being a director of Sir Robert Ropner Ltd., but has also been for many years in the inner councils of the industry. So his experience lies not only in the field of direct ship operation but also in the policy field. He was President of the Chamber of Shipping in 1958-9 and also Chairman of the General Council; he has served on many of its committees, and he has assisted the Ministry of Transport by serving on many of its committees. I really think there is no one better fitted to address you this afternoon on this very important topic.

The following paper, which was illustrated, was then read.

THE PAPER

Shipping is a subject about which, I imagine, almost anyone could become an enthusiast. This is due, no doubt, to the fact that ships have a natural romantic atmosphere of their own. Indeed, a ship is a fine sight to behold, be she a majestic liner, a modern tramp, a small coaster, or even a business-like little tug—often, incidentally, described by writers as 'fussy'.

But this element of romance should not blind anyone to the fact that shipping is an industry. The very description 'merchant fleet' denotes engagement in trade—the old merchant venturers, the equivalent of the modern 'consortium', owned their ships and often sailed in them.

In this country we are especially appreciative of ships and the sea, for we are islanders and shipping is to us, more perhaps than to any other country, an essential part of our national economy.

Before turning to the main theme of my lecture, I should like to remind you that the Royal Society of Arts have had strong links with the maritime industries. Indeed, it has done much to further the cause of navigation and naval architecture. I am told that the records in the Society's archives make reference to the design for a ship's pump back in 1764 and to the trade of the Baltic Sea Ports. In 1757 the Society offered a prize for a preparation to prevent the destruction of the timbers of ships' hulls by worms. There was also research into hull forms and awards were offered for scale models of ships (which were then called 'ship's blocks'), the purpose being to 'ascertain by experiments the principles on which a good vessel is founded . . . passing through the water with least resistance seeming to be the first quality necessary'.

These are but a few examples of the numerous ways in which the Society carried out its original functions, which were to advance, develop and apply every department of science in connection with arts, manufactures and commerce. It is, therefore, fitting that a shipowner should talk to you about a subject in which the members of the Society interested themselves nearly 200 years ago.

Just how important is shipping? Let me explain this to you by a few figures. Last year about 930 million tons of cargo were carried by the ships of the world. United Kingdom ships carried about one-fifth of this huge amount. A recent estimate by United Nations gives the average length of haul as just over three thousand miles, so that the ton mileage of cargo carried by United Kingdom ships, that is, the total of the quantities of cargo carried multiplied by the length of haul, is the prodigious figure of 550 thousand million ton miles a year.

How does this compare with air transport? The annual ton mileage for British aircraft is about 200 million cargo ton miles, so that on this basis ships carry nearly three thousand times as much as aeroplanes. British shipping earns more than 40 per cent of the £2,000 million per year which represents Great Britain's transport revenue.

Now I must remind you that ships are not just ships. They are not bought, as a suit of clothes can be, 'off the peg.' They are 'made to measure' for the particular job they have to do. Long before Kipling described the liner as a 'lady'—with the false implication that the tramp, the tanker, the coaster and other types of vessel are not—ships have been given the feminine gender. But if ship fashions do not change as capriciously as do ladies' fashions, there is a good reason. As well as being far-sighted, a shipowner has to be cautious when planning a replacement programme. If he makes an error of judgement his mistake will haunt him for the lifetime of the ship and he will suffer the unprofitable consequences. You will have noticed from the illustrations which appear in the Press that passenger ships have been given a new look. I can assure you that tramps also, on occasion, are adapted for the carriage of special goods and even tankers have entered the grain-carrying trade. The broad division in the merchant fleet between liners, tramps and tankers is one of function.

The liners may, generally speaking, be compared with express trains calling at certain specified points and running regularly whether full or half empty.

The tramp, on the other hand, is in some respects like a taxi-cab. It can be chartered to go from any place to any place. The great difference between the liner and the tramp is that it is the shipowner's responsibility to fill the liner; in the case of the tramp that responsibility rests upon the merchant or trader who has chartered the ship.

Tankers are specially constructed and fitted for the carriage of liquid cargoes in bulk, for example, petroleum, molasses, or even wine and they have also, as I have indicated, recently come into the dry cargo market for carrying grain. The oil companies own a substantial fleet of tankers but they charter others from independent tanker owners.

There are also short sea and coastal ships, of which I shall say more later. Here again there is a division between liners, tramps and tankers.

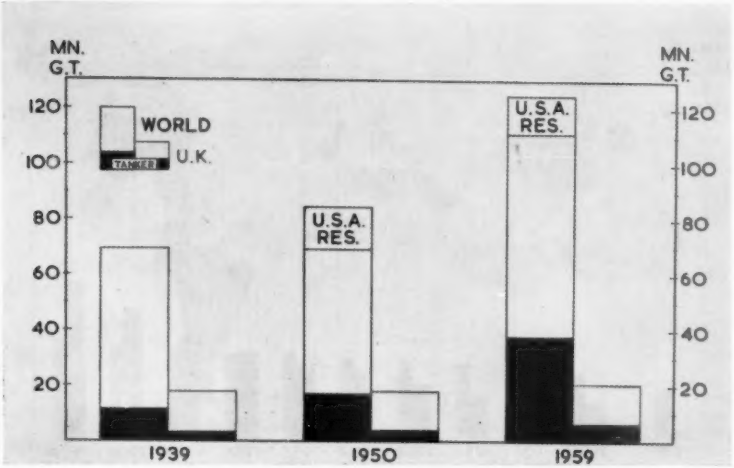

FIGURE 1. *United Kingdom and world tonnage*

This, of course, is but a brief description of the functions of the different classes of ships, but it will, I think, be sufficient for my purpose. I will only add that when liner companies have more cargo than they can lift in their own ships, just as oil companies hire extra tankers, liner companies charter tramps and use them as liners, temporarily to augment their own services.

The British Merchant Navy is made up of more than 3,000 ships representing nearly 19½ million tons gross, Figure 1 shows, in graphic form, world tonnage and United Kingdom tonnage and indicates their growth in recent years.

Britain's Merchant Navy is the biggest trading fleet in the world. Although the United States has over 24 million tons of shipping, something like 14¼ million tons are in the Reserve Fleet. This is the so-called 'mothball' fleet and it consists largely of war-built ships, few of which are likely to go to sea again, except in the case of some unforeseen emergency.

British ships trade to all parts of the world. In days gone by this country owned half the tonnage in the world. We have maintained the size of our fleet over the years but now we own only just over 16 per cent of world tonnage. The reason is that other countries—some of them new to shipping—have built up or created their own mercantile marines and between them have secured a sizeable part of the available trade.

In some cases this growth has been helped by the practice of flag discrimination and the registration of ships under flags of convenience. In the first case, the object is to divert the cargoes into national-flag ships which otherwise would not be able to compete in the open market. The second is to avoid the heavy taxation which the owners would have to pay if they flew the flags of the countries

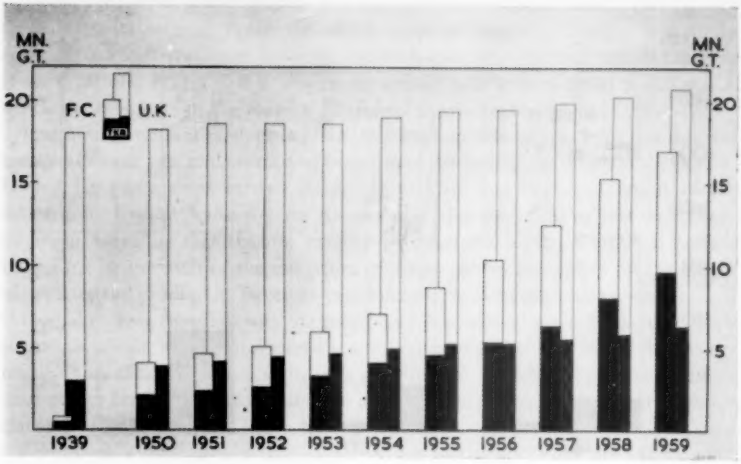

FIGURE 2. *Tonnage under flags of convenience compared with United Kingdom tonnage*

to which they belong. Flags-of-convenience countries impose virtually no taxation. In fairness it must be pointed out that in the case of American shipping under these flags, the object is to overcome the disadvantage of the heavy operating costs under the American flag. This American shipping amounts to some 40 per cent of the tonnage registered in what are called the PanHonLib countries. To be able to fly the flags of countries such as Panama, Honduras, and Liberia naturally gives tremendous advantages in the field of taxation. On the other hand, when there is a depression such as that from which shipping is suffering at the moment, these flag-of-convenience ships seem to be the first to suffer. There are far more lying idle than is the case with what are called the traditional maritime nations. It is a fact, too, that the dry-cargo fleets of the flag-of-convenience operators are much older than the British. But this is not the case with regard to tankers, which are much younger.

Figure 2 shows for 1939 and for each year since 1950 the tonnage of the United Kingdom merchant fleet and the tonnage under flags of convenience. In this chart, too, the solid part at the bottom of each column represents tanker tonnage and the outlined part of each column represents dry-cargo tonnage.

Temporarily the evil of flags of convenience has abated. When there is no profit, there is no advantage under these flags; but once good times return British shipping will be faced again with serious competition from these untaxed fleets. Flag discrimination is a much more insidious evil because its effects are not so easily discernible to the world at large, although shipowners who suffer from it can detect it quickly enough. The British Government have records of no

FIGURE 3. *Flag discrimination (areas in black)*

fewer than 31 countries which, in the past ten years, have practised flag discrimination and which have called for no fewer than 74 formal protests. Only in fifteen cases out of the 74 I have referred to, was the outcome regarded as satisfactory, and even the Government itself now seems to be considering the possibility of stiffening its attitude.

Flag discrimination takes many forms—from the directing of cargoes into national-flag ships, thus denying the trader the opportunity of choosing the most efficient and cheapest service, to preferential treatment in docks and harbours, currency exchange controls, and various inequitable charges and conditions. British shipping, which depends to a very great extent on 'cross trades', that is, the carrying of cargoes between oversea ports, is severely hit by these various discriminatory devices. Figure 3 is a map showing the 31 countries referred to above practising flag discrimination, and from this will be seen what a large area of the world indulges in these practices. I have taken pains to use for this chart a form of projection which gives the least possible amount of distortion to the areas of the respective countries.

Figure 4 shows the quantities of seaborne cargo year by year up to 1958, the most recent year for which figures are available. Tanker cargo has increased steadily and the fall in 1958 in the amount of dry cargo will probably have been no more than a slight check in a period of continuing growth.

It is a strange paradox that while world trade has increased and almost every industry is experiencing 'boom' conditions, shipping should still be suffering from a depression. Why is this? There are just too many ships for the cargoes available. The reason is that in the relatively more prosperous period of a few years ago and especially at the time of shortage of shipping brought about by the closing of the Suez Canal, far too many ships were built; and although world

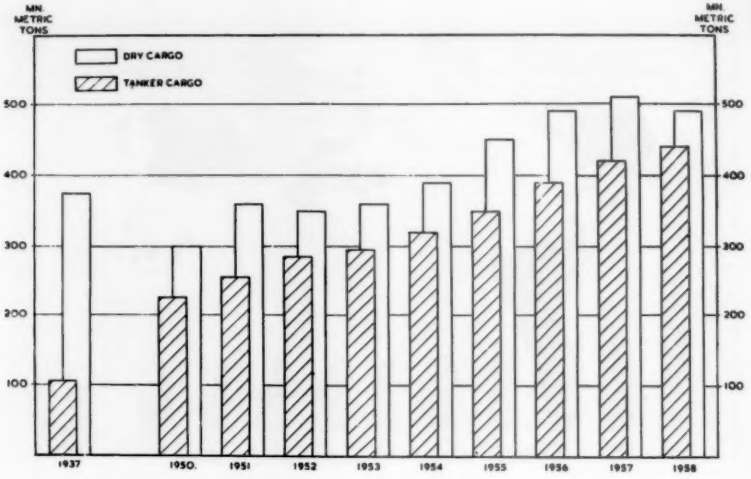

FIGURE 4. *World seaborne trade—weight of cargo carried*

trade is even now not too bad, the fact remains that there is not enough to go round. It is this condition of affairs which distinguishes the present depression from previous depressions in our industry. These were due to a heavy decline in world trade. We are suffering now from the great increase that has taken place in the volume of shipping catering for the trade available for carriage. In other words, during the greater part of the past ten years world overseas trade increased in volume, but the increase in world overseas shipping was proportionately greater. The expression 'Too many ships chasing too few cargoes' is now becoming almost commonplace, but it does strikingly illustrate the present position in the shipping world.

In October last year there were nearly nine million gross tons of shipping laid up in the world for lack of employment, of which 1.2 million tons gross were British. The world total has since then fallen by over three million tons to 5½ million tons gross, for which shipowners throughout the world are profoundly thankful. The total of United Kingdom tonnage laid up has fallen to .9 million gross. Figure 5 illustrates the volume of laid-up shipping quarter by quarter from January, 1958, and also shows, at the bottom, the amounts of British tonnage included in the world totals. Much of the laid-up shipping consists of war-built ships, and these really long ago came to the end of their useful lives. They have been going in an increasing volume to the breakers' yards.

However, that is only one side of the picture. There are still coming into commission new ships ordered two to three years ago when trading conditions were better, and the rate of output, although beginning to slow down, will still be very substantial for months, and in the case of tankers, perhaps years, to

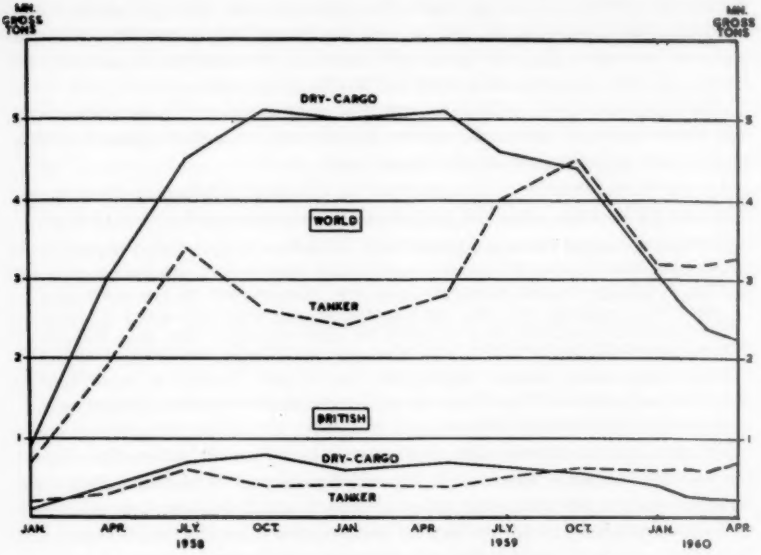

FIGURE 5. *Dry cargo and tonnage laid up throughout the world for lack of employment*

come. It is a rather disturbing thought too, that the capacity of the world's shipbuilding yards is now so great that the whole of the world fleet—now standing at some 114 million gross tons—could be replaced in 12½ years. This means that in the future ships can be built and delivered much more quickly than in days gone by. And this enormous building potential destroys a safety valve. When the production from shipbuilding yards was limited, this itself was a natural check against over-building; in the future if a sudden and unusual demand for shipping arises and there is pressure on shipping space, there seems hardly any reasonable limit to the amount of tonnage that could be built and built quickly—tonnage which would be superfluous as soon as the emergency ended.

So far most of my observations have been directed to the foreign-going part of the British mercantile marine. Now let me say something about the smaller ships which make up our coastal fleet. Here coastal shipowners have to meet two forms of competition—one from road and rail and the other from Continental coasting vessels. There is no reservation of the British coastal trade to British ships. The bulk of the coasting traffic carried by tramp vessels is accounted for by coal. The volume shipped round the United Kingdom coast is a reducing factor. In 1959 it was about 3¾ millions less than the year before. This drop in trade is the main cause of a decline in the number of small ships. Between January, 1959, and January, 1960, there was a net reduction of 61 ships, of

83,000 tons deadweight, a decrease of about 10 per cent both in numbers and tonnage. The reasons for the decline were the intensified competition from rail and road transport, lack of export coal cargoes in the short-sea trades and the decreasing coal trade resulting from Government fuel policy.

There is a strategic as well as an economic issue at stake. The part played by our coastal ships in our recent history should still be in the minds of British people, but unfortunately memories are short.

Let me quote from the annual report of the Chamber of Shipping for 1944–45. This is what it had to say of the part played by our coasting ships on 'D Day':

> From the outset it was recognized that the success of the venture depended in no small measure on the use of coasters which could be brought close inshore, then beached—as were many—or put into the smallest of the ports, for supplying the armies with the vast quantity of equipment and stores required until harbours could be made available for larger tonnage. More than half the entire British coasting fleet was employed in the operation. For many of the small ships whose normal employment was in the Continental trade, and which had performed heroic service in the epic of the Dunkirk evacuation, it was indeed a triumphant return.

No one wants to contemplate another war, but we must realize that should this country ever again be attacked, our major ports may be blown to pieces and we should have to fall back upon the smaller ports which would only be accessible to the smaller ships. It is for the Service Departments to ponder on the experience of the last war, but it would appear to the layman that the strategic value of our coasters is of such high importance that a diminution in their numbers could only be regarded as a weakening of this country's ability to withstand an enemy attack.

I have so far described in broad outline the picture of British shipping as it is to-day. While all sections of the industry are in greater or lesser degree affected by the major issues I have mentioned, some, of course, are more handicapped by the unfair practices in which some countries indulge. Liners, for example, are perhaps harder hit by flag discrimination than tramps. Their trading difficulties are also less apparent than in the case of the tramps. If they are to maintain the regularity of sailing, which is one of the features of the service they offer, liner companies cannot lay up their ships; they must carry on even though some of their vessels may sail with empty cargo space. Owners of tramps, which carry commodities in bulk and are not bound to a regular service, have two alternatives in bad times—to run their ships at a loss or to lay them up. Most shipowners would prefer to keep their fleets in service even if they are making a slight loss. Over the years shipowners have collected round them valuable and trustworthy personnel ashore and afloat. Owners will fight hard to retain these men who serve them so well.

As I mentioned earlier, tramps have recently encountered a new competitor in tankers which, although built for the carriage of petroleum and other liquid products, have turned to the grain market for employment. It was recently estimated that there were two million tons deadweight of tankers engaged in the grain trade.

This is an indication of the steps tankers are driven to take to obtain employ-

ment. Years ago the forecasts about oil consumption throughout the world were so glowing that much more tanker tonnage was ordered than eventually proved necessary; hence the invasion of markets like grain which in the past have been regarded as traditionally belonging to the tramps. And not grain only. I read that one company, which makes cooking fat and animal feeding stuffs, is using American lard brought to this country in tankers. This has probably come all the way from, say, Chicago, since the vessels concerned made use of the St. Lawrence Seaway.

Let me add that I do not include this competition under the heading of unfair practices, although it is an unusual departure, of course, from normal tanker operations. Indeed, as I mentioned earlier, tramps themselves have had to be adapted to changing circumstances. The days of the old general purpose tramp are passing and more and more specialized ships are being built—some to carry iron ore, others motor cars and still others sugar and newsprint, to quote only a few examples.

The passenger liner is almost in a class by itself and it is this section of the industry which has to face the greatest competition from the air. Quite a number of liner companies have, of course, an interest in air transport companies. Their view, and I think it is the right one, is that air and sea transport, while on the face of it competitive, will prove to be complementary, and the link-up between shipping and air companies will possibly be good for both. Shipping companies have an unrivalled experience of passenger traffic, a world-wide network of agencies, and the ability to bring to the newer form of transport the same enterprise and drive as made the British mercantile marine supreme on the seas.

Indeed, with the liners altering their schedules to meet what is now commonly called the changing pattern of trade, and with the tramps adapting themselves to the new conditions of the age, it should be clear to all that British shipping is not stagnant but is alert to the necessity to grasp new opportunities as they arise. The world fleet has increased by well over 60 per cent in the past 30 years. This is largely due to the fact that some countries, with no claim at all to be considered as maritime nations, have established their own merchant fleets. Included in this prodigious growth is the tonnage of countries who, in the first flush of independence, have brought into being their own fleets irrespective of the financial considerations involved and quite regardless of the fact that adequate and economic shipping services already exist to cater for their needs.

No one can object to any country wanting to operate shipping services; the only qualification is that they should not engage in unfair competition or indulge in practices contrary to the best interests of the whole shipping industry and of world trade in general. Unhappily, this has not been the case, particularly in the post-war years. Some of these countries, ambitious to own a merchant service, have had to bolster up their new-born fleets by subsidy or by practising flag discrimination—that pernicious system I described earlier in this paper, a system which, if carried to extremes, would mean that ships would only be able

to carry cargo one way and would have to return in ballast—that is, empty. The result would inevitably be that the consumer would have to pay more for his goods; it would be a premium on inefficiency.

The whole concept of flag discrimination undermines the principle of freedom of the seas which has served world trade so well in the past. History in the form of the navigation laws of the nineteenth century teaches us that restrictive practices lead to a period of stagnation in shipping.

In air transport, too, countries practise blatant flag discrimination against one another, and the blame can be laid fairly and squarely at the door of governments. The right of transit over each others' territories is the subject of bilateral agreements between the governments concerned. The rights to land, load and unload cargo are all dependent on the negotiation of bilateral treaties in which the principle of reciprocity is paramount. There is, in fact, no freedom of the air.

I turn now to the question of shipping subsidies—a policy engaged in by many foreign countries. It is regrettable, but it is a fact, that America is the apostle of subsidies for shipping. Whatever case she is able to make out for her need of a merchant fleet both for trading and for strategic purposes—and no one will deny the claim—what America does is so often taken as a pattern for other countries to copy.

It is the same with flag discrimination. America has a 50 per cent cargo preference law which is now a part of her legislation. The Act in which it is embodied declares that it is necessary that the United States shall have a merchant marine sufficient to carry 'a substantial portion of the export and import trade of the United States'. A 'substantial portion' has, in practice, been interpreted as at least 50 per cent. Originally the provision was applied only in the case of the shipment of United States Government cargoes and gifts to other countries, but it has now been extended to such an extent that it is difficult to distinguish between 'aid' and 'trade' and much of the trade of the United States is affected by one or other of a number of provisions which enable the 50 per cent clause to be invoked. Other countries have been quick to copy the American example and the result is the tangle of discriminatory devices which bedevil the whole shipping industry.

Summing up the position of British shipping to-day as I see it, the outstanding fact, of course, is that the industry is still in the trough of a depression of a severity unequalled since the '30s. The experience of similar depressions in the past has taught British shipowners to conserve resources in good times in preparation for bad, to use their skill and ability to operate ships even when freight rates are at rock bottom, and to plan ahead so that they may take advantage of any improvement in trade.

The average age of the British merchant fleet compares favourably with that of other nations, although we are fairly low down in the list of countries possessing modern tonnage, say, five years old and under—another result of over-building abroad. Actually, of course, we possess many of the finest and most modern ships in the world, particularly in the liner trade.

British tonnage idle at the present time represents only 4 per cent of the entire fleet, a figure which compares very well with the other Western European countries. The figure for the world as a whole is 5 per cent, and of the flag-of-convenience countries, shipowners operating under the Liberian flag and the Panamanian flag have 13 per cent of their fleets idle and those using Honduras 5 per cent.

Here I should explain that in spite of what is said in some quarters in America, British shipowners could not register their ships in Liberia, Panama and Honduras even if they wished to do so.

Before leaving the present, let me touch on the question of taxation, for it is here that further relief must sooner or later be given to British shipping. The tax-gatherer takes, when times are good, too big a slice of the profits which the shipowner should be able to use in modernizing and expanding his fleets. Because times are bad and little, if any, profit is being made from running ships, it would be a mistake to assume that tax revision can wait. It is during the winter-time that the farmer sees to his hedging and ditching. It is in time of depression that the Government must consider, in conjunction with the industry, how the best interests of shipping—and in the ultimate resort that means the best interests of the nation—can be served by readjustment of taxation.

When times were good British shipping earned £225 million in foreign currency; even when times were not so good it contributed £139 million in 1958 to our balance of trade. An industry that can do that deserves some special consideration when, through no fault of its own, it finds itself faced with momentous problems.

I should be doing British shipowners less than justice if I did not express their appreciation of the investment allowance which the Government has given to shipping because they regard the industry as being in a special and, indeed, unique position. But the investment allowance is only of benefit if a shipping company is making profits and able to order new ships, and in any case it has regretfully to be said that the assistance is too little and came too late.

What of the future? British shipowners have shown their faith by placing orders at tremendous cost for liners, tramps and tankers, and some really magnificent ships are now being launched. It is staggering to think that three giant liners of the *Queen Mary* and *Queen Elizabeth* type could have been built 20 years ago for the cost of the latest P. & O. liner—only half the size of one of them—which was launched recently. The payment of a million pounds for a 12,000 deadweight ton tramp is a reminder, too, of the inexorable rise in shipbuilding prices. Taking 1950 as equalling 100, the index number of shipbuilding prices has risen, in the case of deep-sea cargo liners and tramps from 28 in 1937 to 190 in 1959, and for deep-sea tankers from 28 in 1937 to 176 in 1959.

British shipowners have found the money to restore their fleets after two world wars which brought them devastating losses in ships. They are traditionally opposed to subsidy, either in regard to building or operation, yet they may have to face this issue boldly. In any event they must look to the Government of the day

for help. The three practices of flag discrimination, subsidies and flags of convenience are indulged in and indeed encouraged by foreign governments, and an industry cannot unaided fight against a government. In what way, it may be asked, can the Government assist shipping? Let us take flag discrimination. Not long ago in a House of Lords Debate, Lord Chesham hinted at the possibility of counter-measures having to be taken against the flag discrimination exercised by other countries, although he was careful to surround his statement by a number of qualifications. But it is significant to realize that countries with long-established mercantile marines and who have contributed over the years so much to the conception and practice of the law of the sea and the upholding of its freedom, should be driven even to the possibility of having to consider counter-measures, to overcome this evil of flag discrimination.

I agree with my successor in the presidential chair of the Chamber of Shipping, that the Government must always have the interests of British shipping in mind when they sit down, for example, to conclude trade agreements. They must remember shipping, too, when they make loans to other countries and even when considering defence arrangements with our friends and allies. There are several Government departments concerned—the Foreign Office, the Treasury, the Commonwealth Relations Office and the Board of Trade as well as, of course, the Ministry of Transport. If all are mindful of British shipping then, perhaps, flag discrimination can be conquered.

And subsidies? This is a game at which two or more can play. Will the British Government have to resort to counter-measures to prove the lack of wisdom on the part of those who seem to think that subsidy is a substitute for enterprise and efficiency?

The remedy for flags of convenience must lie largely in the field of taxation. If British shipowners are put on a parity with those who desert their national flag for pecuniary or other advantage, then the flag of convenience will become of little advantage and of less importance.

No estimate of the future of British shipping could afford to omit nuclear power. But if anyone thinks this is going to be the panacea for all ills with which shipping is affected, the awakening will be rude. Nuclear power is only another form of fuel. It will have to prove itself at least equal in the economic sense to the conventional fuels now in use before it will be generally adopted for British merchant ships. As I said earlier, ships exist to trade; to trade they must be competitive and no question of national prestige, the desire to be first in the field (or rather the sea), can over-ride this simple economic fact.

It is no use denying that serious problems face British shipping. Unquestionably there are grave days ahead—a slow and painful climb back to prosperity and in any event severe competition. It is because our problems are mostly international in character that the help of H.M. Government is required to solve them. In the old days when this country had the ball at its feet, when it was the greatest shipping nation, the greatest manufacturing nation and the greatest provider of banking, insurance and other world-wide services, international issues did not seem to intrude into the affairs of our predecessors as they do to-day. That perhaps is due

to the fact that to-day governments are, if I may be colloquial, putting their fingers more and more into commercial pies. Many of the problems shipping encounters have been created by governments and they will be soluble only by governments.

The future of British shipping, therefore, depends upon a close and active co-operation between the Government and the industry. I am convinced that British shipping can best be operated under a system of private enterprise. When shipowners say that they must have Government assistance they are not mendicants with their begging bowl, as one Member of Parliament described them, but men who know that an industry unaided cannot fight against governments and must have behind it the active support of its own administration.

No account of the British Merchant Navy would be complete without a tribute to the officers and men who man the ships. Industrial relations in the shipping industry over a long number of years have been excellent. Conditions at sea are good and it is a career in which officers and men take pride. I feel there is no better note on which to end this lecture than to acknowledge again the services shipowners receive from this fine body of men.

DISCUSSION

CAPTAIN G. W. WAKEFORD, M.B.E. (Director, School of Navigation, University of Southampton): Sir Robert, in the figures for shipbuilding you said that from 1937 it was the unit of 28, in 1950 it was 100 and in 1959, 190: an increase of nearly seven times. Is that increase mainly due to increases in wages or in raw materials or is it about equally divided? Have you any breakdown of that?

THE LECTURER: I am afraid I have not got a breakdown. I am a shipowner and it is really a shipbuilder's breakdown.

MR WILLIAM R. GOODMAN: If one assumes that nuclear energy is going to be the fuel of the future, would it be the lecturer's opinion that in order to facilitate the investigation of costs there will be a tendency for shipping companies to group together and become great monopolists?

THE LECTURER: This is probably based on the question of the enormous cost of a nuclear ship being beyond the individual's capacities. Well, there is already a movement afoot for certain companies who are interested in the early stages (not the commercial stages possibly yet) to form a sort of consortium and see how this experiment will work. In other words, there is a movement afoot only in the experimental part of the work—to work with each other in that rather than leave it to individual companies to find out for themselves. Any company that is really interested in nuclear power can, I think, link up with these consortiums and get all the information which is likely to be pooled among them.

MR. GOODMAN: If I may extend that question: in your opinion will the shipping industry eventually become almost a monopoly by eliminating the smaller people?

THE LECTURER: I should certainly hope not. I do not think shipping is the only industry that moves towards bigger units. That is part of the pattern of the world we live in to-day. I should hope that there would always be room for the smallish shipping companies. As in any other trade, when you get an economic blizzard blowing, as there is to-day in shipping, it is sometimes harder for the smaller companies to survive than the bigger companies; but I myself hope very much that there will be room for the smaller companies because they are in many ways the life-blood of British shipping.

MR. M. M. MILLAR: I do not think Sir Robert said anything about submarine tonnage. We have read in the Press to-day of the nuclear submarine circumnavigating the world whilst submerged. Does he see any future for the cargo-carrying submarine of the future?

THE LECTURER: I am only going to put forward my own view—I am not an engineer, whose first job it is to overcome the stresses and strains of any submarine type of cargo ship. I should think there might be a future in it. In the Atlantic, however, you have to go down extremely deep—much deeper than most people think—before you get out of all waves of movement in the sea. The plastic containers which probably most of you have read about are for very calm waters; that is all they are really meant for, and I do not think they have been used for any sort of ocean transport as yet.

MR. J. H. BORLASE: On the question of taxable income, I should like to ask Sir Robert what form he thinks the British Government's help to the industry will take with regard to the difficulties it is in at the moment. After the end of the First World War there was the Shipping Assistance Bill. Does Sir Robert feel that subsidy to the industry by Her Majesty's Government would help to solve the difficulties of the industry?

THE LECTURER: I said in my lecture that the shipping industry is traditionally opposed to the thought of a subsidy. You mentioned the Shipping Assistance Bill. As you know, there was a shipping subsidy in those days, but it was for tramps only. There was a Bill on the Statute Book that might have given something to liners if it had not been for the outbreak of the last world war. My feeling is that things may get so serious that either the industry as a whole or some sections of it (that is what happened last time) may be forced to ask for Government assistance in the form of subsidy, but I think we shall fight on as long as humanly possible first, and will only ask when we feel it is really necessary.

MR. BORLASE: With regard to the Shipping Assistance Bill, the money was given in such a form as to enable the owners to pay it back. Don't you think that if the Government gave some form of subsidy on the same terms, that would be helpful to the industry and enable it to compete against its rivals as far as shipping is concerned?

THE LECTURER: I think I am right in saying that the subsidy was given to the tramp section of the industry based on a freight rate, indexed. I do not think we ever actually had to hand it back, but we did not get it if the index figure rose to a certain level.

MR. BORLASE: Some of it was paid back, I am sure.

THE LECTURER: Well, you have got me beaten there! I do not think so. We have not any records of anything actually being paid back, but we did stop getting it. What was the second part of your question?

MR. BORLASE: I was saying that assistance in a similar form might enable the industry to compete against opposition.

THE LECTURER: I personally am subsidy-minded. I feel that it may be necessary for some sections of the industry if things do not get any better. We may have to go to the Government and ask for a subsidy. But that is my own personal view, and I hope you will take it as such.

CAPTAIN WAKEFORD: Sir Robert, in the breakdown of the cost of British shipping, if, say, the total cost of a ship per year is 100 units, what is the most expensive part? And assuming that one particular part (let us say the loading and discharging of the cargo) is the greatest part of the expenses of shipping, is there to your knowledge any research in progress to reduce the most expensive cost and thereby make British shipping more efficient than it is? To me British shipping is now the most efficient in the world, but naturally I should like it to become more efficient.

THE LECTURER: I should think that repairs during the life of a ship would have been the most important single item; that is, running repairs and surveys. I should think those were easily the most important single item, with wages probably next. Yours is a good suggestion—to examine each part of the cost of our trade to see if we can prune it. Repairs, of course, are largely in the hands of the shipbuilders and ship-repairers, wages are in our hands after negotiating with the Unions, insurance is not high, fuel is very high. Yet I could not pinpoint the place that I am most worried about at the moment.

MR. JOHN MACKINNON: Mr. Chairman, I ask this question with due deference to your own very efficient department. Recently a man who is, I think, very deservedly recognized as a leader of British shipping has thrown out the thought that the Board of Trade might be a better department to look after the affairs of British shipping. Has Sir Robert any comments on that?

THE CHAIRMAN: May I ask Sir Robert to be entirely uninhibited in his reply?

THE LECTURER: I think it has got something to be said for it. I say nothing against the present Ministry of Transport, and my good friend, Mr. Percy Faulkner, knows it full well, but I feel that the present Ministry has got a terrible lot to do, and I think if we could get somebody to take us under their wing and give us even more attention than the Ministry gives us at the moment—and that is an awful lot, I assure you—there might be a great deal to be said for it.

THE CHAIRMAN: Well, I do not want to enter the lists on this one, but earlier in Sir Robert's lecture there were certain references to the part the Government might play, and I might say one or two things about that. It has always been Government's philosophy, irrespective of the complexion of the Government of the day, that the British shipping industry should be one of private enterprise.

The reasons are not far to seek. The British shipping industry grew up and prospered under those principles, it flourished through the commercial acumen of shipowners, and it is no part of the Government's desire to enter into commercial shipping operations. The trouble is that other governments do not think quite as we do; they sometimes, unfortunately, enter into the commercial side of shipping. So far as we are concerned one of our main functions is to stop them doing that so far as we can, because we believe that it is not in the real long-term interest of world shipping as a whole or of the consumers of shipping—the people who depend on shipping services—that governments should try to enter into commercial shipping operations. We do not believe that that really gives rise to efficiency in shipping matters. Shipping is an international business, and it is quite easy to see how the entry of governments into it might in the end lead to fairly direct control by the governments of the world of the shipping of the world. I cannot conceive anything more troublesome than inter-governmental conferences or even bilateral agreements dealing with the commercial operation of shipping.

As regards the last subject which has been raised, that is the question of the appropriate department, I do not want to enter into that at all except to say this, that I doubt if it is fully realized how much day-to-day consultation at all levels there is between the Ministry of Transport and the other departments concerned with shipping—that is, broadly, the Treasury, the Board of Trade, the Foreign Office and the Commonwealth Relations Department.

MR. C. DEWEY: Talking about flag discrimination, in the map which Sir Robert showed us I just noticed that India, in which I am particularly interested, was shown green [grey in Figure 3]. Flag discrimination practised by the Indian Government has caused much worry during the last few years.

THE CHAIRMAN: Although we know India is practising flag discrimination, we have not made a protest to them.

MR. DEWEY: The Board of Trade again!

THE CHAIRMAN: I should add that the matter has been discussed with India as a member of the Commonwealth, and that leads on to this question of formal representations. I sometimes feel that the words 'formal representations' are interpreted to mean perfunctory representations. I can assure you that they are nothing of the kind. Formal representations merely mean that Her Majesty's Government, instead of discussing the thing very fully as it always does in these matters, has decided as well to put the matter formally on record between two governments. I think it would be a pity if there were any misunderstanding about the meaning of formal representations, particularly of regard to the figures which Sir Robert quoted relating to the number of formal representations which had been made by Her Majesty's Government to other countries.

MR. H. E. DENT: I wonder if Sir Robert can give us any indication of the principles which steamship companies apply when considering requests for reductions in freight rates, etc.? There is a large number of exporters who could obtain business in various parts of the world if they obtained better freight rates on various trade runs, and I am wondering what the reasoning behind that is.

THE LECTURER: The liner conferences are dealing with this freight rate system, and I am sure that if any particular person who had a grouse against the freight rates wrote to this conference, they would give it consideration. They might not always give you a reduction in freight, but they would look at it.

MR. DENT: Yes, but there are certain occasions when one knows there is potential business which would be in the mutual interest of the exporter and the steamship company, and when there is a case for a reduction which is not given.

THE LECTURER: I could not argue about any individual case, but the whole basis of the conference system as I understand it (and I am really a tramp-owner and not a liner-owner) is to give a steady rate of freight; it might not always be the lowest that you can possibly get, but on the other hand at other times it is certainly not the highest that you might be charged. You have got a sort of datum line with shipowners that is what the people who send the goods rather favour, because they know exactly where they are and they can base their own calculations accordingly.

If you have a serious grouse you could raise the matter with the conference, but in the conference system you must expect to take the rough with the smooth. You will not get a big fluctuation upwards in boom periods, you will still go levelly along; in the same way, the liner-owners accept the fact that they will not get a boom market in good times either. In other words, you will not get the best of all worlds, up or down, you will just have a steady average.

CAPTAIN C. W. MALINS (Director of Trade Division, Admiralty): Could Sir Robert say whether he thinks the Russians, who have hitherto spent a very small part of their national effort in the carriage of goods by sea, will enter this business in the next decade or so? I have noticed that there has been a remarkable increase in the number of Russian ships around the world.

THE LECTURER: Unfortunately, as I think you probably know, we have virtually no statistics in the Chamber of Shipping regarding the size of the Russian fleet. My own guess is that they will come in here (as indeed they have gone anywhere else), if it suits them. When it suits them, and if they take it seriously enough, they might be a great nuisance. I think they may very easily come in.

MR. E. C. MARKS (Royal Mail Lines): Following on that last question, it might be of interest for those present to know that the Russians are at this moment negotiating with the Cuban authorities in connection with a service which will operate between the U.S.S.R. and Cuba, possibly including the United Kingdom ports. There is

also some talk of a restrictive element, that is to say, flag discrimination, in the running of this service.

THE CHAIRMAN: Thank you, that is very interesting. I think it is also of interest in that connection that in the trade agreement between Russia and the United Kingdom there is a non-discriminatory clause which was inserted at the request of Her Majesty's Government. Well, it only remains for me to say how grateful we are to Sir Robert for his comprehensive and stimulating lecture. It has given rise to a number of most interesting questions and I am sure I am speaking for all of you when I extend to him our very great thanks.

The vote of thanks to the Lecturer was carried with acclamation and, another having been accorded to the Chairman, the meeting then ended.

GENERAL NOTES

ART AT THE EDINBURGH FESTIVAL

Though pictorial art is traditionally the Cinderella of the Edinburgh Festival, music and drama—those far from ill-favoured Sisters—assuming first place, nevertheless the annual journey over the Border has been well worth while for the sake of the series of major exhibitions devoted to the pioneers of modern French painting, later transferred from the Scottish Academy to the Tate Gallery. Last year the Fine Art offering made, in general, a less distinct impression. But in the Festival which has just closed under the artistic direction of Mr. Robert Ponsonby—he is to be succeeded by the Earl of Harewood—the visual arts fully recovered their earlier form, notably with the first comprehensive exhibition seen in Britain of the Blue Rider Group of expressionists, active in Munich half a century ago, who were given the freedom of the central galleries of the Scottish Academy.

In London the Marlborough Gallery presented last year under the title 'Art in Revolt' both the Blue Rider (*Blaue Reiter*) and the Bridge (*Brücke*) groups of German expressionists; but far the more important event was this Edinburgh exhibition of over two hundred works by the *Blaue Reiter* fellowship, reminding us how far-reaching were their aspirations, closely associated with Nietzsche's philosophy. For such imaginative spirits as Kandinsky and Franz Marc, painting was the expression of a new consciousness of life, and the members—who included, it is interesting to recall, Arnold Schönberg—were as much interested in developments in modern music, in the theatre, and in literature.

Though Kandinsky, Klee, and Marc all philosophized in print, their spiritual experience is incapable of analysis. There seem to be no recognized clues to their passionately emotive colours such as can explain an Oriental symbolism. At the same time, Kandinsky (Russian brain of the movement) was deeply conscious of the correspondence between music and painting. In the progress of his art from Post-Impressionist and fairy-tale pictures to the vibration of colour and pure form achieved in an *Improvisation* of 1912, we follow his spiritual pilgrimage to abstraction. Paul Klee actually contemplated a musical career before he developed his idiosyncratic art, and Schönberg as naturally reversed the process. The blue, red and yellow horses of Franz Marc shine with the light of the new vision which he held would 'reshape our art.' It is tempting to dwell at length on the range and richness of the collection, which will fortunately be on view again later at the Tate Gallery. Familiar as we are with the Fauves and the Cubists of France, and the Italian Futurists, our relations with Germany have only lately enabled us to judge the significance of what started in Munich at that most fertile period. No one interested in the springs of the modern movement will care to miss seeing these impassioned works before they are returned to their German and Swiss collections.

It is proper to speak here of the self-denial of the Scottish Academy, which annually reduces its summer exhibition to a token representation of works by Members and Associates in order to honour their distinguished foreign guests. This year there was a particularly fine room which showed that the Scottish love of thorough craftsmanship may accompany—as in the paintings of William MacTaggart, John Maxwell, and Robin Philipson—a singular and imaginative vision. The shimmering surface of John Houston's tangle of blue birds, the romantic make-believe of Anne Redpath, and Joan Eardley's dour painting of a jetty and flying spume, reinforced the impression of the vitality of a mature school which finds a meeting-place in the northern Academy without any of the prejudice which keeps so many leading English artists outside Burlington House. In the Sculpture Hall, the work of Tom Whalen, C.d'O. Pilkington Jackson, Benno Schotz, and Eric Schilsky lent distinction and gravity to a small collection, principally of bronzes.

John Maxwell and Anne Redpath also had shows to themselves during the Festival. One's delight in John Maxwell's poetic imagination arises partly from the rarity of the experiences of enjoying it south of the Border. One of his strangely stirring oils, a group of nudes in red and orange entitled *The Trellis*, overwhelms its neighbours in Edinburgh's new gallery of Modern Art housed at Inverleith House in the Botanical Gardens. But, surprising as it may seem, Mr. Maxwell's landscapes, figures and flowers drenched in emotive water-colours, gathered for the Festival at the Arts Council's Gallery in Rothesay Terrace, comprised the first entirely one-man exhibition of this retiring Scot who once studied at the Académie Modern under Léger and Ozenfant.

Essentially Mr. Maxwell's art is a fairy-tale classicism intensified by the inward vision of a romantic. A nymph recumbent beneath leaping flames of blossom; classical virgins, ponderous yet buoyant, disposed in mysterious communion; luminous cliffs under dark stained skies, flowers bursting quite naturally from a sea-shell—everywhere one wonders at the consistency of this dreaming vision of life reshaped in the artist's imagination. Nothing could be more personal than his spidery and exploratory contours enclosing the fullness of his forms, the thorny network of pen-strokes asserting a detail, the flushes of exotic colour suffusing the images with a radiance as of stained glass.

His compatriot, Anne Redpath, is familiar on both sides of the Border. Her romanticism is as feminine as Frances Hodgkins', though sweeter in its muzzy fashion. In a collection, her richly scumbled colour may tend to cloy. But it is a manner readily responsive to the vivid, electric effects of the Canary Islands, the theme of her latest paintings at the Scottish Gallery. The heat that plays tricks with a reefy shore, or the glow of a baroque church interior, summons qualities of a higher order than the whimsy of her table-pieces. Nor were the exhibitions on the Festival's Fringe unworthy this summer. Alastair Park and Alex McNeish, for instance, are still groping their way; but their joint show of expressionist and abstract painting respectively (at the 57 Gallery in George Street) attested the questing spirit of students trained at the Edinburgh College of Art.

NEVILE WALLIS

EXHIBITION OF LITTER BIN DESIGNS

In the May, 1960, issue of the *Journal*, notice was given (p. 462) of a litter bin design competition organized by the Council of Industrial Design in association with the Ministry of Housing and Local Government and the Department of Health for Scotland. More than 100 entries for this competition have been received, including bins for many purposes and of various materials, and an exhibition of the winning designs will be opened in the Victoria Embankment Gardens (Whitehall Section), London, by the Minister of Housing and Local Government at 2.30 p.m. on 6th October. The exhibition will remain on view until 20th October.

NUCLEAR ENGINEERING ABSTRACTS

There has recently been published the first issue of a new periodical which should prove a valuable work of reference for those in any way concerned with nuclear engineering or its ramifications. *Nuclear Engineering Abstracts*, which is to appear four times a year, presents, in an easily assimilable form, digests of technical literature originating from reports, patents, special prints, periodicals and certain newspapers and house journals. In order that the coverage shall be as complete as possible, special emphasis is placed on the tracing and quoting of relevant information communicated through media reporting in other spheres than nuclear energy and engineering. Each abstract is fully referenced, and there are three indexes—to publications quoted, authors and subjects.

The first number of *Nuclear Engineering Abstracts* comprises two issues, July and October, 1960, and costs £1 12*s*. 6*d*. The annual subscription rate (covering four issues) is £6 6*s*. Inquiries should be addressed to the publishers, Silver End Documentary Publications Ltd., 9-11 Tottenham Street, London, W.1.

OBITUARY

We record with regret the deaths of three Fellows of the Society.

SIR HAROLD BOWDEN

Sir Harold Bowden, Bt., G.B.E., President of Raleigh Industries Ltd. and a Vice-President of the Federation of British Industries, died on 24th August, aged 80. He was educated at Clifton and Clare College, Cambridge, and joined the Raleigh Cycle Company, which had been founded by his father, in 1899. For many years he was Chairman of the Company, and respected not only for his business acumen but as a just and liberal employer. His benevolence was particularly felt, by the large body of work-people employed by the firm, in the aftermath of the General Strike in 1926 and continuously during the slump in the early 1930s. Sir Harold, who was made G.B.E. in 1929, had twice been President of the British Cycle and Motor Cycle Manufacturers Association. He served as High Sheriff of Nottinghamshire in 1933. From 1931 to 1935 he was Chairman of the British Olympic Association, and gave unfailing support to successive British Olympic teams.

He became a Fellow of this Society in 1948.

MR. J. DAVIDS

Mr. Jaap Davids, who died at Southend-on-Sea on 16th July, aged 62, was a well-known and accomplished artist who had exhibited regularly at the Paris Salon. A Dutchman by birth, he had been editor of a newspaper in Holland before settling in this country. In addition to painting, his professional interests included calligraphy and graphology, of which he had an expert knowledge. He was the author of several novels. He became a Fellow of the Society in 1954.

MR. D. B. STEINMAN

Mr. David Barnard Steinman, B.S., A.M., C.E., Ph.D., who died in New York on 22nd August, aged 74, was a distinguished engineer and designer of bridges. Beginning life with few material advantages, he made his way to City College, New York, and thence to Columbia University, where he took civil engineering and M.A. degrees in 1909. Eight years later he won a competition for the design of the Florianopolis Bridge in Brazil (the largest bridge in South America), and thereby established his reputation. Since 1923 he had been in independent practice. Amongst the works of his maturity may be mentioned the great Mackinac Straits Suspension Bridge, Michigan, which has a channel span of 3,800 feet, the Henry

Hudson Memorial Bridge, New York, and bridges spanning the Tagus at Lisbon, and the Bosphorus at Istanbul. In recent months he had been planning improvements to the Golden Gate Bridge at San Francisco.

Steinman was elected a Fellow of the Society in 1948, and a Benjamin Franklin Fellow in May of this year.

NOTES ON BOOKS

SCULPTURE OF JAPAN. *By William Watson. London, The Studio, 1959. 65s net*

The exhibition of Japanese sculpture, seen a couple of years ago at the Victoria and Albert Museum, aroused much interest, particularly the pre-Buddhist pieces, the like of which had never been shown before in this island. The publication of the present book, with its 87 plates and scholarly text by Mr. William Watson of the British Museum, is a token of that interest and is very welcome. It traces soberly and succinctly the course of the art until the fifteenth century. Sculpture in Japan means for the most part Buddhist sculpture, chiefly images of the Buddha in various forms he assumed in the Mahayanist canon. It dates from the time when the Japanese were converted to Buddhism by Chinese and Korean missionaires, an event which took place in the fifth century A.D. The pre-Buddhist sculpture, which interested us so much in England, because it resembles other primitive sculptures which have influenced modern artists, is outside the history of Japanese civilization and has no more link with Buddhist sculpture than has, say, the style of Stonehenge with the Greek. The first three plates in the book are of this prehistoric sculpture, but the author gives it only passing mention in his text, for his exposition is concerned with civilized Japan; and Japanese civilization dates from the Buddhist conversion, as does English civilization from the Christian conversion. The parallel, however, is not complete, as some of the inhabitants of this island could look back to three and a half centuries of Roman-imposed civilization, followed by three centuries of chaos and barbarism, while the Japanese emerged once and for all from their barbarous period in the fifth century.

Japanese sculpture was, thus, the daughter of Chinese Buddhist sculpture, as the latter was of Indian Buddhist sculpture, and can be regarded as the cousin of Cambodian, Siamese, Burmese and Javanese Buddhist sculpture. Nevertheless, the average man finds it harder to distinguish it from Chinese sculpture than he does to distinguish the Buddhist sculpture of China, and the other countries mentioned, from each other and from the mother sculpture of India.

The present book tells us how to distinguish it. Chinese Buddhist sculpture, of course, was an evolving art; it changed with the centuries and with the evolution of Buddhist ideas. Japanese sculpture followed that evolution. But the Japanese were always able to give their art some impress of their own spirit. It was very rarely a copy of the contemporary Chinese. Rather, it was a variant or interpretation of it, reflecting Japanese mentality.

Mr. Watson gives a detailed description of its characteristics. One of its peculiarities was that wood rather than stone was its predominant material. Bronze was used, too, as were clay and lacquer. But the greatest masterpieces, and those of the most pronounced Japanese flavour, were of wood. Mr. Watson explains this by suggesting that as the material of Japanese architecture was wood, there were no masons, and so no craft in which stone carving could be rooted. But while material is a quality distinguishing Japanese from Chinese religious sculpture, the fundamental difference lies in the mood. To describe in words the mood of Japanese sculpture is difficult. To me it seems more august and awe-inspiring than the Chinese and perhaps more masculine and closer to humanity. Though the images have the air of deities, they are not without a suggestion of earthly lordship. They have more individuality than

is usual in Chinese images. To sense such distinctions is not easy, but I would say that it is easier than to distinguish English from French sculpture, particularly of the Gothic period.

MAURICE COLLIS

JAPANESE COLOUR PRINTS. *By Laurence Binyon and J. J. O'Brien Sexton. Edited by Basil Gray. London, Faber*, 1960. 84*s net*

First published in 1923 and long out of print in spite of the international recognition of its authority, *Japanese Colour Prints* demanded the revision it has now received from Mr. Basil Gray's hand. Laurence Binyon's assessment of the artists still remains valid and unaltered. But the second edition has prompted a number of footnotes to the old text made in the light of recent research. Mr. Gray has also made a few necessary changes to the sixteen colour plates, supplemented by prints reproduced in monochrome at the end of the book. The work is thus brought into line with current scholarship while remaining in essence the study which enthralled such devotees as Ricketts and Shannon, whose love of the visual harmonies of the Japanese colour print is commemorated in Harunobu's masterly *Two girls drying cotton thread*—from their collection now in the British Museum—which provides the delicate frontispiece.

The actual process of cutting and printing the wood-blocks has been described often enough. But the traditional relationship of the Japanese designer to his wood-cutter and printer had remained somewhat obscure to us until their functions were clarified for English readers of this book. The artist's original sketch or ink-line picture was handed, in fact, to the engraver, who cut it on a key-block, after which a printer took off the required number of correction proofs, one for each colour. The artist then limned on each proof the tint he desired, giving these correction proofs to the engraver who proceeded to cut colour-blocks for each colour. The highly skilled process of matching the required *notan*, or tone, on each colour-block was the printer's; and few were qualified to produce the precise relationship of hues on which the beauty of the print depended.

To the previously mentioned Ukiyo-ye master, Harunobu, the invention of the polychrome print was indeed a godsend in calling forth his genius for colour. We are reminded here of his initial use of an exquisite pearly grey made by mixing ink with white lead and powdered mica, such as served him for masonry, as in the print of a boy offering to sell toy-archery to a woman going home past the great walls of Yedo Castle. At the same time, he was not alone in suffering from the evanescence of certain colours employed in the eighteenth-century Meiwa period. He would use a fugitive blue, a vegetable colour, for his skies which has since tended to fade, though not inharmoniously, with damp. To this period belongs Koryūsai's dim golden falcon standing proudly silhouetted on a rock against a night sky. Thereafter skies became blank, and only when Prussian blue came in with the nineteenth century, and Hokusai began to design his great landscape prints, did a strong but graded tint again suffuse the artist's skies.

We have become accustomed nowadays to art albums whose lavish colour plates fail to atone for some dry-as-dust or ill-translated text. How heartening it is, then, to find learning wedded to the elegance of Laurence Binyon's style. A single passage may suffice to indicate his sensitivity to that imaginative art which has sublimated the everyday aspects of the Japanese scene to enrich the experience of the Western world. 'The sweet, slim girl crosses a bridge in the snow; or blows soap-bubbles in an April garden for her little brother; or listens to the vanishing cuckoo, or to the evening bell from the near temple; or she dances demurely in a ceremonious temple dance; or buys from a fan-seller stopping, with his pile of black fan-boxes on his shoulder, at her door; or sends a love-message by a little maid; or is parting from her

lover. Harunobu rarely takes his subjects from the Yoshiwara; but even when the girl is a courtesan, how innocent in her delicate aloofness she appears!'

NEVILE WALLIS

A POTTER IN JAPAN. *By Bernard Leach. London, Faber, 1960. 36s net*

This book is the outcome of a visit to Japan made by the author to enable him to study the post-war condition of the craft movement in that country. It was first published in Japan by the Mainichi Press, who financed Mr. Leach on his outward journey. His English publishers rightly felt that there was a public in the West which would value an account of this movement by one who has enjoyed intimate and prolonged contact with its founder, Dr. Soyetsu Yanagi.

During his stay of 21 months Mr. Leach travelled more than 10,000 miles, lectured and broadcast talks, wrote the greater part of two books, produced 1,000 pots and 1,000 drawings and arranged 10 exhibitions. Small wonder that at the end of it all he found himself tired and a little peevish. His remarks upon the difficulty of adjusting his frame to oriental seating accommodation and the cumulative effect of Japanese food are understandable, but at the end of this gentle and perceptive book one of the greatest of Western craft potters can re-affirm his belief in all that the Japanese Craft movement stands for. In discussing the irreconcilable aspects of the Japanese people—their love of natural beauty and their use of brutality—he concludes that Japan is like a mask with two faces, War and Peace—the Sword and the Tea-bowl. Emphatically he is with the latter.

Leach was born in Hong Kong and his early years were spent in Japan. He returned there at the age of 21 after reading Lafcadio Hearn. He had studied at the Slade School meantime, and at first he taught etching to the Japanese. Soon he found himself caught up in the agreeable custom of pottery making which was prevalent among Japanese people as a cultural accomplishment. This led to a serious study of pottery from the *Gete* (ordinary) rather than the *Johin* (refined) approach, and he studied under Ogata Kenzan, sixth in descent from the famous decorator, Kenzan. Thereafter his life work was clear, and although European and especially pre-industrial English craft thought has informed much of his subsequent work and teaching, his indebtedness to the Orient remains.

Inevitably there is much in the book concerned with travel and food and chance encounter. There is also much wisdom, more, indeed, than can be mentioned in a short review, but the theme is consistent throughout—a mistrust of post-Renaissance culture and a sincere belief in the craftsman as an integrated being. To those who care for these things the book will be a source of abiding pleasure.

The drawings—I should prefer to call them sketches—are fascinating but uneven. Many are in the Japanese idiom but occasionally the western half of the artist asserts itself and we find such splendid things as the impression of a Nō stage (p. 190), which would have pleased Goya, or the Utsukushiga Hara Peak (p. 126), which might be by Alexander Cozens in a violent mood. The portraits are not so successful, but the notes of grasshoppers, fishes and birds, obviously for pot-painting, are fine examples of pottery calligraphy.

GEOFFREY BEMROSE

PARIS. *By John Russell. With Photographs by Brassaï. London, Batsford, 1960. 21s. net*

Most civilized men fall in love with Paris at some point in their careers, and sometimes the love-affair lasts throughout their lives. And the Paris they fall in love with (if they be really civilized men and not either packetted tourists or members of Café Society) is not the Paris of the great boulevards, the international hotels, or the night-clubs, but something both more permanent and more evasive: the Paris of the back street, the dilapidated mansion, the out-of-the-way church. The beauty of Paris is obvious to all, but its real flavour needs to be sought out with

love and understanding by a man with sufficient culture to know what he is looking for, and with enough sensitivity to have his own reaction and to be able to transmit it.

Such a man is Mr. John Russell. During the last quarter of a century he has paid, he tells us, a hundred visits to the French capital, and to these 'bodily visits' must be added a 'leisurely marinade of memory, research and speculation'. The research is there all right. He knows his Daudet, and Gautier, and Viel-Castel. He is deeply versed in the Bottin, that extraordinary amalgam of the telephone book, *Kelly's Directory* and *Who's Who*. He knows the hotel where Wagner stayed to finish *Die Meistersinger*, and the hotel where Oscar Wilde died. He knows which architects were responsible for which bits of the Louvre, and who lived, and when, in the Palais Royal.

He is particularly interested in the *Marais*, that once fashionable quarter (rather like our own Covent Garden), which now pullulates with proletarian life. He provides the necessary 'sociological sextant' for its exploration. 'For the *Marais* is not a life-sized architectural museum in which people of low degree have contrived to camp out; it is a vigorous and unsubordinated quarter in which the tenement-houses happen to be signed by some of the greatest of French architects.'

He proves a useful guide to the little-visited Faubourg St. Antoine, where the fervour which made a whole series of revolutions can still be fanned into flame. It is here too that are to be found the finest collection of wall-papers in Europe and the last of the café-concerts. He is equally good on the Île de la Cité and the Île St. Louis; and on the fifth, sixth and seventh *arrondissements*.

He finds some excellent and evocative phrases: the 'Puvis-grey robes' of the *Sixième*, the 'lugubrious congeries' of the Sorbonne, the 'splendid aridity' of the Panthéon, the 'companionable inferno' of the Rue Mouffetard. He has found his way to St. Médard, even if, rather oddly, he says nothing about the strange miracles which are supposed to have taken place there at the tomb of the deacon Paris. He admires the texture of stone, 'crumbly as a ripe Wensleydale', and suggests that the garden of the Palais Royal, on the other side of the river, 'suggests a rather grand almshouse or home for convalescents of distinction'. Understandably, he does not like Baron Haussmann, but gives him his due.

Mr. Russell's book would be a pleasure to read even if one had never been to Paris. For any one who shares his enthusiasms it is a feast of information and delight. Even those who have visited Paris as often as he has are sure to find something they have missed or hardly noticed, and be tempted to set off at once to repair the omissions. The photographs by Brassaï are first rate, and the book (as one expects from Batsford) is excellently printed and produced. It is dirt cheap at a guinea.

JAMES LAVER

FROM THE JOURNAL OF 1860

VOLUME VIII. *26th October*

MANUFACTURING CLOCKS FOR THE CHINESE

[*From an article, 'The Trade in Cheap Clocks—German and American', signed 'P. L. S.'*]

With all their ingenuity and industry the Chinese appear to employ themselves but little in the art of clock-making; and it may be safely declared, that Geneva turns out more time-keepers in a year than are produced in the whole of the Celestial Empire. In the large city of Nankin, there are not more than forty clock-makers; Su-chew has thirty, and Ning-po not more than seven; while, until recently, the

value of the clocks and watches imported into China from Europe amounted to about half a million dollars yearly. . . . The enterprising horologists of New England make and export clocks every year by tens of thousands. These latter, with that keen spirit of trade which characterises them, have lately been turning their attention to China as a profitable market for their handicraft; and a request was despatched some time since from the United States' Patent Office, to such American citizens as were resident in the flowery land, for any information that might promise to benefit the branch of industry in question.

From one of the replies which this 'request' elicited, we gather that the Chinese have always been too deficient in their acquaintance with astronomy and mathematics to construct proper sun-dials; and that their knowledge of these instruments was obtained from Europeans; while hour glasses are known only as a contrivance 'employed in Western countries to measure time.' Many Celestial gentlemen make it a *sine qua non* to carry two watches; among these, specimens of very ancient workmanship are sometimes met with, as rotund as 'Nuremberg eggs', and the wearers are too often anxious to make the pair go well together. The trouble they gave in consequence, in former days, to some of the Jesuit Fathers who were skilled in clock-making, will be found mentioned in the *Lettres Edifiantes et Curieuses*.

A Chinese day comprises twelve periods, each equivalent to two hours, and they are represented by twelve characters on the clock-face, being those used also to designate the months. 'The first in the list (meaning Son) is employed at the commencement of every cycle, and to the first of every period of twelve years, and also to the commencement of the civil day—at eleven P.M.—comprehending the period between this and one A.M. The month which is signified by this term is not the first of the Chinese year, but singularly enough coincides with January. Each of the twelve hours is divided into eight *kih*, corresponding to quarter-hours. This diurnal division of time does not appear to have been in use in the time of Confucius, as mention is made in the spring and autumn annals of the *ten* hours of the day.'

The writer whose remarks we quote, recommends his countrymen, in manufacturing clocks for the Chinese, to adopt the clock-face commonly used in China with some improvements, one of which would be to surround the twelve 'horary characters' with a ring of numerals from one to twenty-four, every alternate one of which would be opposite the half hour of our time, and to continue the use of the four signs which now stand near the centre of the face to indicate midnight, dawn noon, and evening. The pendulum is to vibrate seconds; the minute-hand to make half a revolution at every sixty seconds; and the hour-hand is to go but once round the face in the whole diurnal period. As the result of this arrangement—'At one o'clock P.M., our reckoning, the hour-hand will be half-way between the large character at the top and the next one to the right; and the minute-hand having made half a revolution, will point perpendicularly downwards, and the clock strike one. At the expiration of another of our hours, a whole Chinese hour will have expired, when the former hand will have reached the first large character to the right, and the latter will be directed to the zenith—the clock striking two.' The minute-hand is, therefore, to make twelve revolutions in the twenty-four hours.

The clocks are to be constructed with lines and weights, as those with springs are not liked in China; and as a Celestial always likes to see what he is buying, it is suggested that the works be made as visible as possible, and of good quality, to avoid the loss that would be sure to follow attempts to palm off clocks made to sell merely. To gratify the Chinese wish for utility, the lower part of the door is to contain a looking-glass, or if not this, something very ornamental; and inside, instructions in the native character for fixing, winding, regulating, etc. Such clocks as are here described can be manufactured in Connecticut for two dollars and a half each; and . . . they can be sold in China at from five to six dollars each. . . .